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THE PRIVATELY ENDOWED MEDICAL SCHOOLS

Their Present and Future Financing

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Americans are used to crises. They have survived several in recent years. But because in a democracy national action depends on mass understanding, we attack our crises almost too late. This is particularly true when the issue develops slowly and insidiously. It is easier for the nation to unite in the face of a dramatic Pearl Harbor or a polio epidemic than before an emergency in national health.

How can there be an emergency in national health? Judged by business standards the members of the medical profession should be in a prosperous state, for their services were never in higher esteem, greater demand, expanding more rapidly or paid more highly. Yet such a crisis exists.

Part of it centers in the high and increasing cost of medical care to the patient. That is a great problem, as yet unsolved. But we recognize its existence, and we approach solutions—though not as rapidly and courageously as we should. That issue concerns all of us, but its solution will not really meet another part of the emergency—the one which is my subject today.

That crisis lies in the training of physicians to provide medical care for the people of our nation. That training in proper quality and numbers depends on the prosperity and quality of American medical schools. Financially their situation is desperate.

STATEMENT OF NINETEEN UNIVERSITY PRESIDENTS

Desperate is a strong word, but its use has good authority. Nineteen presidents of universities with leading medical schools said in a joint statement issued last March:

> The present provisions for ensuring a continuing supply of well-trained physicians are inadequate. They are inadequate because the medical schools which provide that supply are inadequately supported in terms of future needs. Few if any of the seventy recognized medical schools in the United States can be confident, with present resources, of maintaining in the future their programs at the essential high level.
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> Over the past fifteen years private support of medical education has not been regularly maintained. Three or four medical schools came perilously near to closing during that period. Many medical schools were forced to abolish certain teaching positions; to reduce teachers' salaries and important medical services; to restrict promising research; to make very heavy demands upon the time and energy of doctors, nurses and hospital staff; and to forego normal growth and improvement.

What have been the results? I offer a few illustrative examples. "Although our battle casualties were thirty to forty per cent psychiatric in World War II, there are not five medical schools in the United States with departments of psychiatry adequately endowed." "There is hardly an exemplary department of dermatology in the country." "Industrial medicine, preventive medicine and medical sociology remain undeveloped for lack of funds and trained experts. The organization and development of pharmacological teaching languishes for lack of support, and tropical medicine, so obvious to our recent and future responsibilities, remains relatively unexplored."

These are matters of quality and content, but there is also a grave question of quantity. Conservative estimates, based on present demands, place the number of physicians required by 1960 as about 225,000. At present rates of output, retirement and death, only 210,000 physicians will be available at that time.

The nineteen university presidents concluded:

> Unless existing conditions are quickly changed, medical education will decline in quality, and medical research will falter. . . . We warn our fellow citizens that without their prompt and generous aid our medical schools, through their graduates, cannot be expected to safeguard the future of American citizens and their children.

That statement was almost out of date when it was written, and is wholly inadequate now, so rapidly have costs risen in the last two years. It is no longer a question of funds to expand medical schools, but of finding funds to maintain them as going concerns. Before expansion must come needed financial provision to enable medical schools to maintain their present quality and numbers.

Our medical schools are attached to our universities. If universities are hampered by lack of funds, then their medical schools suffer. Let us therefore glance at the position of universities in 1948.

POSITION OF UNIVERSITIES IN 1948

In 1946-1947 university students were paying 26 per cent, and the government, on account of veterans, 30 per cent of total expenditures (United States Office of Education 1946-1947). Most of the balance in private institutions is met from endowment income, which has decreased. If enrollments remain at present levels and government funds are withdrawn as veterans' education rights come to an end, higher education will be short by an additional 30 per cent the amount needed to meet total expenditures. But this is only another straw on the back of an overburdened camel. "G. I. Bill of Rights" tuition payments to higher education have not paid the full cost of instruction of veterans. They merely created a new problem, and their cessation will create another one. Beneath those problems lies the basic one that revenue is inadequate to need.

Estimates of the additional income which higher education requires above its pre-war needs run as high as 200 per cent (Seymour Harris). It is true that endowments have increased over the past twenty years, but those increases are misleading. At face value they seem notable additions, sufficient to provide added income for the expansion and improvement of higher edu-

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cation. But increased costs, lower rates of income on investments and the decreased purchasing power of the dollar offset, and sometimes more than offset, these additions to capital.

The situation of Harvard, America's richest university, is typical. Between 1928-1929 and 1945-1946, Harvard's endowment increased $68,000,000, or about 66 per cent. Yet the goods value of its income from endowment in 1946 was no greater than the goods value of its endowment in 1928-1929, and in addition Harvard's endowment in dollars—depreciated dollars—per student in 1946 is only 66 per cent of the endowment per student in 1928.

EFFECT ON MEDICAL SCHOOLS OF WEAKENED UNIVERSITY FINANCES

The effect of weakened university finances is already painfully felt in their medical schools, since medical schools are not adequately endowed and must depend on general university funds. As Dean W. C. Davison of Duke University Medical School stated in his 1947 report:

> All medical schools are having difficulty in providing the bare necessities for adequate instruction and for the training of personnel. The present salaries of instructors, nurses, technicians and secretaries are not meeting the increased cost of living.

A highly authoritative survey as yet unpublished and therefore confidential in source reports: "More than 25 medical schools need assistance to reach accepted minimum costs of adequate operation."

Even the federal government has come to recognize the situation. The report of the President's Scientific Research Board, headed by John R. Steelman, dated October 1947, states:

> Most medical schools, especially those without State funds, are facing the prospect of reducing their training programs, or even—in a few instances—of closing altogether. Expansion is out of the question, unless substantial support is forthcoming . . . at a time when expansion of both (training and research) is vitally needed. An even more acute financial need exists in the graduate schools for basic sciences. Thus the training grounds for medical investigators—the very roots of medical progress are threatened.

In considering this problem it is important to distinguish between medical care and medical education. The two are of course inseparable and mutually dependent, but they are different functions, and adequate support for one does not necessarily mean adequate support for the other. In the case of medical care, the chief problem is to reduce its cost to the average patient. But the cost of medical education cannot be appreciably reduced if quality of training is to be maintained. Indeed, that cost is likely to mount still higher, as each year adds to the scientific knowledge which a medical student must acquire. The solution in medical education is not primarily to reduce costs but to acquire funds to meet almost irreducible costs. A reduction in costs of care to patients and a reduction in costs of hospital operation would help the cause of medical education, but would not in themselves greatly reduce costs of medical instruction.

But at this point it is pertinent to suggest that medical schools should promptly study every one of their functions to discover whether instructional costs may be reduced without loss of quality. The New York Academy of Medicine recently pointed out that "there has been no fundamental reorganization of American medical education since 1910."

Such a study should be made, though I doubt that its results would produce economies. I have observed that every time a faculty studies its program, it emerges with a new program at higher cost. But the study might show how teaching efficiency could be improved. Certain traditional functions and methods might be found to have lost their original values if scrutinized in the cold realism of 1948.

Those medical schools which do not live on tax money are in the most difficult position. The iconoclast might ask: "Why not let private medical schools die of starvation and depend on the tax-supported schools? Why is the continued prosperity of private medical schools important?"

PRIVATE SCHOOLS LEADERS IN MEDICAL EDUCATION AND RESEARCH

The answer lies in the record. The private schools have been, and still are, the leaders in medical education and medical research. Their independence of state control has been an important factor contributing to their leadership. Without them the state university medical schools themselves would suffer, but the medical profession and the public would suffer even more.

Of the total crop of M.D. degrees conferred between 1930 and 1940, between 60 and 66 per cent came from privately endowed institutions. Of students currently enrolled in accredited medical schools between 60 and 66 per cent are in private medical schools.

So much for the past and current contribution of the private schools to the production of physicians. How great is their contribution to medical research? Recently I asked two medical authorities this question: "Approximately what part of the distinguished advances in medical research over the past decade have come from graduates of privately endowed medical schools?"

Dr. Alan Gregg and Dr. Willard Rappeleye, reporting separately, agreed that 80 per cent of our significant advances in research have come from graduates of private medical schools. This record is an adequate answer to those who would let the private medical schools decline.

In presenting the importance of private medical schools I do not lack appreciation of the state-supported medical schools. Some of them have demonstrated that an educational institution can receive large public funds and still maintain high qualitative performance and freedom from political interference. But I remind you of the topic assigned to me—the privately endowed medical schools.

HOW MUCH IS NEEDED

Accepting the need for greater funds, how much is needed? This is not a question easy to answer, since universities have difficulty in separating clearly the cost of actual instruction from the cost of their teaching hospitals and the cost of their research, and no one can say with certainty exactly what part of the cost of a teaching hospital, or of the cost of research, should be assigned to medical schools as absolutely essential to medical education. But one can offer estimates.

The budgets of the seventy-seven medical and basic science schools for the academic year 1947-1948 exceed $43,000,000, and, generally speaking, this figure does not include costs of patient care in teaching hospitals, or plant maintenance, or general university administration, or research grants from foundations, industries and governments. Therefore the figure is too low, but let us accept it for working purposes.

Of that amount student fees provide less than $12,000,000, or 28 per cent, and expenditure per student per year ranges from under $2,000 to over $5,000. The remaining 72 per cent must be derived from other sources.

Research grants from external sources, though large and usually of educational value, do little or nothing to relieve the actual costs of medical instruction.

In its study entitled "Medical Education and the Changing Order" (1946), the New York Academy of Medicine stated that "the medical schools of this coun[illegible] need to double their budgets for teaching and research by 1960." No authority that I have consulted thinks that estimate excessive. All things considered, I believe that medical schools now need about $40,000,000 more per year. This is less than the amount estimated by the New York Academy, but I believe that our schools need that amount now. They cannot wait until 1960.

How much is $40,000,000? It is about 1/6,000 of our gross national income. It is about 1/1,000 of the federal budget which Mr. Truman has asked for 1948. It is 1/5 of what Americans spend annually on vitamin pills, often to no advantage whatever. It is less than 4 per cent of what Americans spent on jewelry in 1946; it is less than 1 per cent of what Americans spent on recreation in 1942, and less than the receipts from forty-five horse racing tracks in 1939. Nationally speaking, it is pin money.

If this $40,000,000 were all capitalized into endowment yielding 4 per cent, the needed endowment would be $1,000,000,000, still only 1/40 of our proposed federal budget for 1948. But since the $40,000,000 estimate includes the budgetary needs of the state-supported medical schools, which operate primarily on tax money, the billion for endowment can be reduced accordingly. The state schools turn out between 34 and 40 per cent of the annual crop of M.D. degrees. Reduce the $1,000,000,000 for endowment by 34 per cent and $660,000,000 is left, which compares with the $689,000,000 separately arrived at by Dr. Donald G. Anderson, Secretary of the Council on Medical Education and Hospitals of the American Medical Association, as the endowment now estimated as needed by the private medical schools. The two figures are so close that one can accept them and say $680,000,000.

So private medical education needs either $680,000,000 for endowment or some $30,000,000 annually. Endowment is preferable, but because of the large amount needed one should look to annual gifts to supplement whatever endowment can be secured. If these are the necessary goals, how can one reach them?

PRIVATE SOURCES OF FUNDS

Speculation on the sources of further income is a familiar game to university people. It is easier to list the possibilities than to make them reality. First consider the chances of large additions to medical school endowments.

The present endowments possessed by medical education have come chiefly from two sources. One of those was large gifts from philanthropic foundations interested in medical education. The hope of further large additions from this source is remote. Few if any foundations now favor the policy of making large gifts from capital sums, and thus in a few years distributing their assets and ending their usefulness. And the total income available from all such foundations probably does not exceed $4,000,000 per year, less than 1 per cent of needed endowment and only 10 per cent of the annual need of medical schools. Foundations are probably wise in devoting most of this income to the temporary stimulation of unusually promising or pressing research problems. They must be eliminated as major contributors to the future cost of medical education.

The second source of medical endowments has been multimillionaires. Few still exist, and unless our tax structure alters, fewer will exist in the future. But to despair of further large gifts from private persons is to give way to excessive pessimism. Occasional gifts and bequests of several millions of dollars are still coming to universities, and there are still more multimillionaires than is generally known. But they must be found; they must be reached; they must be educated to giving largely to medical education. To do this, the entire medical profession as well as university officers must be constantly alert and energetic. If they are, large private gifts can provide much of the needed endowment, and/or much of the needed annual budget. And a change in tax laws, making them more favorable to the acquisition of fortunes and to the gift or bequest of large sums to education, could greatly enhance aid from this source. Every one of us should work to get our tax laws altered —not simply to make the rich richer, but to permit the accumulation of private funds for future gifts to education and to increase incentive for such gifts.

A second way to increase endowments is by large numbers of small gifts. This is a device increasingly visualized and adopted as the large fortunes have declined. It is effective only after a thorough campaign of public education. Such educational campaigns are expensive in time, energy and dollars, and to be effective must be continuous. As a method of fund raising, the small gift program is comparatively inefficient, but it has the advantage of compelling a campaign of public education, and education of the public to the needs of medicine is absolutely essential.

To inform and convince all middle class American citizens of the needs of medical education will not be an easy or rapid achievement. I suggest that it could be done by an organized and continuous campaign on a national scale. In that campaign all the leading forces of medical education and medical care should join in closely knit unity of objective and action. Otherwise the results will be trivial as compared with the need. But the possibilities are unlimited, as a few examples will indicate. I cite them for your encouragement.

In the period 1932 to 1944, in which national income ("gross national product") rose from $60,000,000,000 to $240,000,000,000, or 400 per cent, the rise in the amount spent by individuals of the nation on higher education was trivial. The money went somewhere else. It did not all go to meet taxes or the added cost of living; part of it went for luxuries or for what used to be considered luxuries.

In 1932 the public was left with $40,000,000,000 after taxes. In 1947 it was left with about $180,000,000,000 after taxes, an increase of 450 per cent. The public spends $110,000,000,000 more on consumption goods now than in 1932. Over the past fifteen years personal consumption expenditures for nondurable goods rose from $20,000,000,000 to over $100,000,000,000, increasing over 500 per cent. Personal income rose from $48,000,000,000 to $200,000,000,000, increasing over 400 per cent.

According to a report quoted in the latest report of the President's Commission, philanthropic contributions for the ten year period 1930 to 1939 amounted to an average of less than 2 per cent of the income reported by individuals on federal tax returns for that period. If this average had been 5 per cent, or only one third of the 15 per cent exemption permitted, about $6,000,000,000 of additional funds would have come to educational institutions and other philanthropies. Had the full 15 per cent exemption been utilized, the additions to philanthropies would therefore presumably have been $26,000,000,000.

These figures would indicate that there is in private pockets more than enough to finance painlessly the added costs of medical education. Professor Seymour E. Harris of Harvard concluded that education is not receiving an adequate share of the nation's annual flow of resources or disbursements. The reason, I believe, is that the education-loving American nation is not really aware of the need.

What of other sources of funds, annually or for endowment? Direct support for medical education cannot be hoped for through community chests. Such aid as community chests can give to medicine is more properly directed to support of hospitals, which need all the aid that community chests can possibly provide.

It is now the fashion of all those who wish to raise funds to turn to industry. American business has been most helpful to medical research, and will be equally helpful in the future. But there are limitations on the type of aid which business can give to medical education. Its obligations to stockholders rarely make direct gifts to medical education proper The normal procedure is to aid research. Though helpful, such grants relieve little if at all the regular budgetary costs of medical instruction. Grants are usually limited to one or a few years, raising problems of staff appointment and security, and forcing sudden abandonment of research. Much of the research currently financed by business is applied rather than basic in nature. Medical education should cultivate the friendship and further support of American business and industry; it must educate business friends to the importance to them of fundamental research and of long term grants to the greatest extent circumstances will permit. Business can greatly help medical schools, but it cannot be a major direct factor in meeting the added costs of medical education.

GOVERNMENT SUBSIDIES

There is serious talk of government subsidies to help medical education. I believe that such subsidies are inevitable, since even if medical education is wholly successful in securing needed support from private sources, it cannot be wholly successful in time to save our medical schools from further deterioration. Not all educators regard government subsidy as the proper solution, and indeed government support has great potential dangers to higher education. But the present issue in medical education is not whether to accept government aid, but to work out terms by which government aid can be provided without permanent ill effects. It behooves us to work quickly and affirmatively with government to formulate those terms. This subject cannot be adequately treated in this paper, but neither can it be ignored.

The best form of government aid would appear to be through federal grants, whether or not routed through the states. Both the policies and the administration of such federal grants should be wholly in the hands of a nonpolitical, national commission of private scientists and lay citizens, appointed by and responsible directly to the President. Valuable precedents, with appropriate adjustments, exist in the National Academy of Sciences, in the proposed National Science Foundation and, best of all, in the methods by which the British government supports higher and medical education, without regimentation or political nepotism.

The best forms of aid which government could supply to medical education appear to be (1) emergency grants-in-aid, on some standard formula and without strings, directly to approved medical and related schools; (2) grants to aid in the construction of added physical facilities, with necessary equipment, to improve teaching facilities, strengthen research programs and (only when existing programs have been saved) to provide for more medical students on a high qualitative level, and (3) most important of all as a long term program, a system of federal scholarships for students of medicine, generous in amount and awarded wholly on a nonpolitical, nongeographic and nonracial basis, perhaps with some commitment on the part of the scholarship holder to serve for not less than a stated period with either the medical services of the government or in the medical schools of the nation.

One difficulty would be to determine and agree on the actual total cost to a university of the education of one of its medical students. A formula which included only total teaching and salary budgets and actual cost of supplies used by students would be absurdly unrealistic. What proportion of the annual deficit of a teaching hospital should be charged against medical education? What proportion of the total cost of research in medical schools should be charged against medical education? What part of the annual deficit of the outpatient department? What part of university administrative overhead and hospital and plant operating costs, etc., are justifiably included in figuring the actual instructional cost per student? A realistic decision might make even present top estimates per year seem puny. Possibly such a formula could be found, and agreed on, permitting government grants-in-aid on a student cost basis. The fact that the Navy and the universities agreed on a formula for overhead, and applied it, offers some hope.

But even as we study the need for government aid, and proper terms for its acceptance, let us remember that to the greatest extent possible government aid should be only a supplement to increased support from private sources. Large funds, available for endowment or annual giving, still lie in private hands. The primary and long term objective of private medical schools should be to secure private funds, as promptly and as largely as possible. We must act with private enterprise on private enterprise. We can reach the goal if and only if the entire medical profession makes the effort with unity, with energy, with continuity. In that effort lies the safest future and freest progress of medical education and medical care.

ABSTRACT OF DISCUSSION

DR. BENNETT H BRANSCOMB (Vanderbilt University): As a layman I feel a hesitancy in speaking to this professional body. The essential problem seems clear however to all of us We have built up in the last quarter century the most highly developed system of medical research and medical instruction known anywhere. The leadership in that development has been carried by a number of privately endowed institutions. For fifteen years we have had vast social and political changes which have curtailed the creation of new fortunes and have made it necessary for individuals of means who wish to contribute to education to pay for the privilege of doing so. The result has been that the source of support for these institutions which have been in the forefront of this amazing medical development has been greatly reduced. This is the essential problem: What shall we do about it? The idea of letting medical education be taken over by state schools would be socially wasteful. There are values in the independent medical schools which can serve society which might not be shared to their full extent by the state school. While the public would not agree to any solution which said, "Close up these private medical schools," this is progressively taking place. That process will continue. We will simply close down gradually and try to do the job adequately with the funds which we have at our command, unless this problem can be solved in some fundamental way.

There are four lines of solution The first of these is to distinguish between medical care and medical education, particularly as it applies to our teaching hospitals. The public is convinced that it ought not call on teaching institutions to provide medical care for the indigents of our cities and states. The time is now ripe to transfer that cost to the proper governing bodies of our states and cities and counties. Eighty per cent of the cost of carrying 200 indigent patients per year at present costs will run between $500,000 and $600,000 a year. The obvious solution then is, to be perfectly frank, that that charge must be carried by other agencies, and the teaching institutions have no obligation to render that particular service. We must teach people to understand that in these teaching hospitals every patient, private and otherwise, must be available for teaching purposes

The inducement we are going to make is that these teaching hospitals will provide so much better medical care that private patients will be glad to pay to come in, in order to secure this service and make themselves available for teaching purposes.

We must publicize to a far greater degree than we have done the plight of the private medical school. If the public wants it, it must support it I need only refer to the enormous contributions given in recent years for research work, to show how the public responds when it understands what the essential problem is. The fourth avenue of possible support is support by the federal government The medical schools which have depended on private support are facing a serious crisis. We have every right to look to the federal government, both from the standpoint of the great service and the record of these schools, and from the standpoint of the responsibility of government for this crisis to give emergency support to the medical schools Two consequences I think will follow from a program of federal support of private medical schools·

The first is that if the public recognizes that the federal government is supporting the schools of medicine, it will, to an increasing degree, insist upon more and more control of medical practice The usual view advanced is that the government will insist upon controlling the medical school A program of federal support is going to further efforts to control the total medical program of medical care as well as of education There is a second dangerous result I am afraid of the effect on the schools—not only that they will be reduced to a sort of dead level of uniformity, but that much of the sense of initiative and development which have characterized these schools will tend to disappear The temptation will be to wait for federal agencies to put the funds out to start new departments and new services

Dr. Joseph Hinsey: All medical schools are experiencing great difficulty in finding funds for the adequate training of physicians Just when demands for medical care and public health are unprecedented and steadily mounting, the quality of medical education is in danger of deteriorating for lack of sufficient income The present salaries of teachers, nurses, technicians and other personnel do not meet the increased cost of living Teaching is handicapped for lack of adequate equipment and space. Many otherwise qualified students are today unable to pay the high costs of their medical education Since the maintenance, let alone the advancement, of the medical welfare of our people depends on the production of adequate numbers of well trained physicians and research workers, the under-financing of medical schools is a problem of national moment Funds for medical research are available in amounts greatly in excess of those provided before the war, although much greater support is needed for continuing national security and progress. The best utilization of such research funds is impossible today owing to the shortage of scientific personnel and the limited physical facilities of many medical schools. In the United States, medical schools have been financed in four ways· private endowment, private gifts, tuition fees and taxes. Income from endowment and private sources has steadily decreased Tuition fees, which paid 70 per cent of the cost of medical education in 1910, now pay less than 30 per cent of such cost; yet tuition fees are already so high that many capable students are debarred from studying medicine. It is to public support, then, that medical schools must turn. Only public appreciation of the financial plight of our medical schools, and public help in providing for their support, can prevent serious deterioration in the health and well-being of our people.

Dr Harold Lueth: I would like to mention that there are twenty-seven schools which are supported by tax funds through states or municipalities, and they present a little different picture than the one just presented and some notice should be given to them. For the same reasons enunciated, state-supported schools like private schools find tuition fees cannot be raised. Endowment or gift funds, while they have been successful in some state institutions, have the disadvantage that they may dissuade the legislature from appropriating as much money in succeeding years, so there is an end point to the possibility of gaining funds from those sources. The more difficult problem of whether or not the state endowed schools should enter the practice of medicine is such a complex one that I will just mention it. In general, funds for state or municipal schools come through general legislative action. The whole financial picture in the state-supported school is not quite the lush and verdant pasture that some of the earlier speakers indicated. Research, of course, is being conducted in tax-supported institutions, and we are grateful to the privately endowed institutions for their advances in organization and leadership in those areas. It is believed, however, that state-supported schools have a certain contribution to make; namely, they can show the privately endowed schools how public money can be used, and how academic freedom can also be retained. Lastly, the most important thing is to conduct the widest possible educational or public awareness program to let everybody know the many financial problems not only of the privately endowed but of the state-supported school.

MEDICAL EDUCATION IN GERMANY AND AUSTRIA

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The state of medical education, as it exists in Germany and Austria today, may appear to have only a remote relation to the health of other portions of the world, and in particular to the problems of medical care in the United States. A moderate degree of reflection, however, will clearly demonstrate that the health of any large nation in the center of the continent reflects quickly on the health of all surrounding countries. Furthermore, those who have been familiar with the problems of medical licensure of foreign physicians during the past two decades will anticipate that this experience will be repeated as soon as it is possible for physicians of Germany and Austria to migrate to the United States. Inevitably, pressure will be brought to bear on the various licensure bodies to pass on the qualifications of the graduates of the German and Austrian medical schools, in order that they may be permitted to practice in this country on an equal basis with the graduates of the American medical colleges It is vitally important, therefore, that the responsible bodies, including this Congress on Medical Education and Licensure, concern themselves with continuing

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Based on a survey conducted with Dr. Edmund Horgan under the auspicies of the Surgeon General of the United States Army.

Read before the Forty-Fourth Annual Congress on Medical Education and Licensure, Chicago, Feb 10 1948 surveys of the status of the European medical schools in order to evaluate properly the physicians applying for licenses from them. The condition of these schools as of 1948 cannot be as accurately analyzed five or ten years hence, at the time these physicians will make their applications. Careful records should be compiled, recording the state of the educational program of each European medical school during each of the war years and the years thereafter. It will be made clear from my discussion that there is a considerably discrepancy between the potentialities for medical education among the various medical schools of Germany and of Austria today, and this will be perpetuated until such a time as they are all in better position from the point of view of *materiel* and faculty. It now appears that this improvement will be slow to occur, and in some instances the universities may never achieve their former stature.

There are five major facets essential to medical education: a well trained faculty; suitable buildings for the preclinical and clinical teaching, including hospital facilities; adequate supplies and equipment for the laboratories necessary to the training of the students and the carrying on of research; a patient volume load of sufficient size and variety to permit experience in a large number of diseases, and a well selected student body. All are vital. The faculty and the carefully chosen student body are the most important. Today, in Germany and Austria, the clinical material is the only ingredient which may be considered as adequate.

FACULTIES

The faculties of the German medical schools suffered during the Nazi regime from a systematic Nazification program. As a result of this, practically all Jewish teachers and many other teachers of distinction who dared to differ with the Nazi philosophy were removed from their posts, and in most instances went to concentration camps, not to return. This served greatly to deplete the university faculties. At the same time, a policy was established whereby a Nazi party member was placed in the faculty of each school, whose functions were to see that the remaining members did not deviate from the party line and that all new members of the faculty appointed had demonstrated strong Nazi sympathies. This resulted in most of the medical schools being solidly Nazified. Immediately after the cessation of hostilities, the Allied Military Government started a thorough system of de-Nazification. At first, all teachers who were known to be Nazi sympathizers were removed from the faculties, but later a more stringent ruling was passed which made it necessary for all who remained on the faculties to demonstrate that they had never in any way indicated their sympathy to the Nazi party. Those who could not fulfil this requirement were, for the most part, sent to concentration camps. Since, during the tensions of the past fifteen years, it was practically impossible for an intellectually active person to refrain from some expression of opinion one way or the other, the complete disintegration of the faculties of the medical schools was inevitable. At Tubingen, for example, there were only two members of the medical faculty who survived the double purging. At Frankfurt, one third of the faculty had been dismissed before the close of the war as anti-Nazi, and when this was combined with de-Nazification, few professors were left. Until recently, six full chairs of the medical faculty were vacant. The Munich medical faculty lost seven professors out of a total of sixteen. Some of the teachers in the medical schools were still not officially cleared at the time of our visit in September and October 1947, but, for the most part, the ones who remained were acceptable to the Allied Military Government.

As a result of the years of poor teaching, during the Nazi regime, there are few younger men capable of occupying the chairs which are vacant. In other words, there is no younger generation to step into the positions of teaching responsibility. Scattered throughout this rather desolate picture are a few strong characters who survived the various vicissitudes of purges, concentration camps and other indignities and who are attempting to lead their respective universities out of the morass into which they have fallen. Notable among these are Sauerbruch, Professor of Surgery at the Charite Krankenhaus of the University of Berlin, who, though in the Russian sector, has been able to maintain a relationship with the British and Americans and who is continuing in his position of leadership. Professor Brugsch, of Medicine, is also Vice Chancellor of the University of Berlin and is making a noteworthy contribution in this regard. At Frankfurt, Professor Volhard, now 78 years old, has been restored to his chair from which the Nazis removed him, and he is still an outstanding teacher of medicine. The University of Munich has been greatly damaged, in respect both to faculty and to equipment. Professors Beingold, Frey and von Seuffert are attempting a reconstruction program. At the Kaiser Wilhelm Institute, Professors Schultz and Singer are still noteworthy. Of the schools visited, the University of Heidelberg appears to have maintained its status best. Heidelberg was declared a free city early in the war and never suffered from bombing. Because of a strong and stable faculty led by Professor Bauer, Professor of Surgery, the faculty was never seriously depleted by the Nazis or Allied Government. Today it remains as the outstanding medical school in Germany, the second probably being the University of Würzburg, which likewise did not suffer seriously from bombing, although the town of Würzburg was virtually destroyed.

In Austria, the situation is somewhat different, most of the faculty having weathered the vicissitudes of the various regimes. Thus, there are Professor Wiethe, dean of the medical school, an otologist, Professor Kauders in neuropsychiatry, Professors Schoenbauer, Finsterer and Denk in surgery, Professors Lauda and Fellinger in medicine, Professors Artz and Wieldmann in dermatology, Antoine in gynecology and Chiari, who is outstanding in pathology.

These and other men of stature in Germany and Austria are attempting to gather about themselves groups of young disciples who may in another eight or ten years or more develop into adequate teachers, although their basic education has been of a poor order.

THE BUILDINGS

Even such leaders as those mentioned previously may be handicapped to the point where their work is largely ineffectual if they do not have adequate laboratories and hospital facilities. The effect of bombing on most of the German medical schools and university hospitals was appalling. When Hans Reis, who made a survey immediately after the war, reached the University of Kiel, for example, there was not a single person available for questioning or discussion in the bombed-out buildings once used for preclinical studies, collection of specimens and teaching purposes. At the University of Munich, the medical school was largely destroyed. The anatomy, physiology, physiochemistry, hygiene and bacteriology, botany, zoology and chemistry institutes were practically incapacitated. The surgical and the first and second medical clinics were only shambles. The eye, dental and outpatient clinics were severely damaged. Less harm was done to the obstetrics, gynecology, neuropsychiatry and dermato urology clinics. Even two years later, at the time of our visit, major portions of the medical school remained heaps of rubble, and the surgical clinics were far from rebuilt. Large numbers of students crowded about in totally inadequate facilities, and relatively little active rebuilding was in process.

At Frankfurt, the anatomy, hygiene, pathology, pharmacology, physiology and surgical sections were severely damaged. The Orthopedic Hospital, which originally had seven hundred beds and an outpatient clinic, was completely demolished. One wing of the Psychiatric Hospital was destroyed completely, with all records pertaining to the effects of bombing on psychiatric conditions. The library of the City University Hospital was destroyed. A subterranean air raid hospital had been built on the grounds of the medical center, and it did permit operation of many hospital functions during air attacks, but the medical school had ceased to function from February 1945 until after cessation of hostilities. A similar report could be given in reference to most of the universities. The University of Vienna's buildings in contrast were sufficiently intact so that work could progress in a fairly normal manner.

EQUIPMENT

The lack of equipment was one of the most disabling factors interfering with the conduction of proper medical care and teaching. In most of the schools, the laboratory equipment had been completely destroyed, especially all glassware, and much of value in the way of fine balances, and so forth, had disappeared in the course of various raids and periods of disorganization.

The x-ray equipment at most universities was reduced to a meager basis. Most of it had been damaged or had worn out. The most critical item, however, was tubes. According to the statements made to us, no new x-ray tubes have been manufactured in Germany since the war ended. This was the result of the fact that the raw materials, the workers and the factories were in separate zones, and could not be brought together for their production. There is no money with which to buy x-ray tubes from outside sources. Therefore, as they wear out, the situation becomes increasingly acute, and many hospitals are now using their last tubes.

Chemical supplies are at a premium. It is perhaps symbolic of the high degree of destruction of scientific civilization when one finds that at the University of Munich, long famed for its fine chemical research, the determination of blood sugar studies is frequently impossible because of inadequate chemicals necessary for this simple test.

From the point of view of the treatment of patients, many of the simple necessities are missing. Soap was at a premium, and some hospitals are almost without it. This became an acute problem during the epidemic of infantile paralysis in Berlin. Many surgeons have had to return to bare-handed surgery because of lack of rubber gloves, and such distinguished surgeons as Schoenbauer showed us gloves which they were using, patched many times. Rubber tubing for enema and catheter use is extremely difficult to obtain.

There is no penicillin available to the German hospitals; there is no streptomycin. Some sulfonamide drugs are available. The absence of these and other modern therapeutic agents makes it impossible for the German physicians or students to have any training in modern therapy. Indeed, they are still very skeptical regarding the effects of penicillin, especially in the treatment of subacute bacterial endocarditis.

PATIENTS

The one item necessary for medical education which is present in great plethora is volume of patients. Never have the demands been greater or the facilities for care poorer. The strain of the war years, followed by the malnutrition of the postwar years, together with the extremely poor sanitary and health conditions, has magnified the incidence of all types of infectious diseases to a high degree. The facilities for the handling of these patients are hopelessly inadequate, and many of them must remain in their crowded homes, even though they are severely ill with tuberculosis, typhoid and other diseases which are highly dangerous to the population at large.

STUDENTS

The situation as has been outlined clearly indicates that it would be possible to train only a few students even moderately well. The actual facts are, however, that the student bodies of the university medical schools are larger than they have ever been in the history of German medicine. Approximately 50 per cent of all students registered in the German and Austrian universities are registered in the medical schools. This is the result of several factors. One is that in times of turbulence such as Europe has been through, and still faces, the degree of medicine has maintained some essence of stability and dignity. It has, furthermore, frequently been a key of some sort which permits its possessor to enter foreign countries. It enables him to support himself in these foreign lands. Another factor of considerable importance is that, under the totally socialized medical regimes of the countries being discussed, the appointments to the medical school student bodies are made by political boards. In most medical schools, the faculty has nothing to say about the selection of students. In certain sections, as in greater Hesse, the selection is somewhat more careful than in others, but even here it is not conducted by the faculties of the medical schools. Furthermore, after students are admitted, they may continue to attend the medical school classes for as long as two years before they have to take their first examinations; this, whether they are suitably qualified or not. Discussion with members of the faculties in both Germany and Austria indicated that there was great dissatisfaction with this situation among the teachers but that they were unable to successfully combat it. Appointment on a political basis has resulted in tremendous overcrowding. For example, in Vienna there were 3 500 medical students out of a total student body of 7,000. It was reported that at Munich there were 4,000 registered in the medical school, with 3,000 on the waiting list. Most of the other schools had from 1,800 to 3,000 medical students. Only the smaller ones had as few as 1,200. Inquiry indicated that the faculty members were inclined to believe that all of these students who so elected would eventually graduate. They have several opportunities to pass each set of examinations without being eliminated from medical school. They may take as long as eight or more years to complete their courses, which is not new in these countries, but it was anticipated that most of them would receive their degrees. As an additional inducement for attending the medical schools, in a number of areas medical students receive extra rations. When the population is on a legal ration limit of 1,500 calories, this is an inducement of no mean proportion, and, I might add, has little to do with whether the student is suitable for or interested in the profession of medicine. Thus thousands of young doctors in excess of the professional needs of the countries in which they are being educated will be cast forth into the civil population during the next decade. It is clear that on realization of this many will wish to migrate. Sincere effort is being made by certain leaders such as Professor Volhardt to restrict the number of students admitted to the medical schools, but thus far they have been unable to curb the political pressures.

It is obvious that in most of these medical schools with extremely limited faculties, bombed-out buildings and little or no real equipment, the teaching of medicine as it is known in this country is totally impossible. The only schools which our mission visited capable of training young men to a moderately satisfactory degree were Heidelberg, Würzburg and Vienna. Even there, the lectures were crowded beyond anything found in the medical schools in this country and the students were, for the most part, maintained at a great distance from any considerable contact with patients. Experimental work, or laboratory demonstrations, were largely didactic and theoretical rather than by actual student participation. The best teaching facilities in Germany today are not comparable to those of accredited medical schools in this country. What then is to be done with the graduates of these schools when they apply ten years hence for licensure in this country? Those who have graduated but have not had prolonged postgraduate training cannot be considered as comparable to our graduates. Each of the great professors has a small group similar in function to our present resident staffs. These men may remain with him from five to twenty years. They are the privileged ones, and a few of them may rise to become true leaders of medicine and the teachers of the future. Men who can demonstrate that they have worked *en famille* with leaders of this type for a period of years might be considered as comparable to some of our graduates.

It is not within the scope of this presentation to submit detailed recommendations regarding the solution of this situation, but rather to portray the problems as they are found in Germany and Austria today, and to delineate what your boards will be confronted with in the future. The following suggestions, however, appear pertinent: (*a*) that your body conduct a survey of the status of each European university medical college annually, noting its progress toward normal or its lack of progress, its strength and its weaknesses; (*b*) this material should be made available to each of the state licensure boards; in years to come, they will then be enabled to consult this data referring to, let us say, the year 1948 and to determine whether the graduates of the school under consideration received adequate training or not; (*c*) in addition to this, the qualifications of each candidate should be considered in detail in reference to his postgraduate experience. It is not sufficient for them to state that they attended Professor X's clinic for one or five years. This may merely mean that they sat on the back row of an auditorium or that they made rounds on the fringes of a crowd of fifty with Professor X. It must be known whether they actually had a residency or family relationship with the professor and whether they became dozents[1] or held some similar position. These favored ones might well be considered more seriously for licensure in this country.

SUMMARY

In summary, medical education in Germany is at an extremely low level at this time. The Universities of Heidelberg and Würzburg are the most satisfactory. Medical education in Vienna is somewhat better, but is handicapped by overcrowding.

The major factors responsible for these deficiencies are: lack of well trained teachers, bombed-out medical school buildings, loss of equipment and inability to replace it and poor selection of students, which is under the control of political boards rather than the members of the medical faculties.

Students graduating from these schools have not received a medical education comparable with that obtained in medical schools of this country. This situation should be subjected to continuing analysis and recording by the boards of licensure so that in the future graduates from these schools who apply for license to practice in the United States may be properly evaluated.

MEDICAL EDUCATION IN LATIN AMERICA

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South of the Rio Grande the teaching of medicine began long before formal instruction was introduced in North America. The first medical school was established in Santo Domingo in 1538. A medical school was organized at the University of Mexico in 1580, and other schools appeared in Lima, Peru, in 1621; Habana, Cuba, 1728; Santiago, Chili, 1756; Bogotá, Colombia, 1758, and Buenos Aires in the Argentine in 1801. There were hospitals in Latin America long before similar agencies for the care of the sick appeared in North America. The first hospital was established in Guatemala in 1503, and an excellent institution, which has grown to great size and developed scientifically, was established by a Catholic brotherhood in Santos, Brazil, in 1543.

From the sixteenth century on, the Spanish government provided health officials and scientific councils to its American colonies. As early as 1569 Peru developed a Tribunal del Protomedicato General, which was concerned with medical licensure, the inspection of drugs and investigation of new remedies. The Spanish code of Castile prevailed in its American vice royalties. Physicians today concern themselves with prenatal care and the premature child, but a paper on the welfare of the newborn was published by Francisco Laguna as early as 1781.

Unfortunately, the inspiring progress of medical education and the institutions that prevailed from the sixteenth century to the beginning of the nineteenth century deteriorated. Attempts were made under French influence to reform medical education and the care of the sick after 1830. From 1830 onward, progress was marked by some amazing contributions, but the twentieth century saw a new decline, and apparently the effects of World War I and World War II were so severe as to indicate at present a serious departure for most of South America from established scientific medical standards.

Read before the meeting of the Federation of State Medical Boards, at the Forty-Fourth Annual Congress on Medical Education and Licensure, Chicago, Feb. 9, 1948.

[1] Associate professors or a similar position.

Aristides A. Moll[1] in "Aesculapius in Latin America," published in 1944, has reviewed the growth of the medical colleges in Latin America and their gradual evolution. He presents some factual data which convey a general picture of the Latin American medical educational scene. Of the present 54 medical schools, 27 were founded in the nineteenth century. At present Costa Rica and Panama are the only countries without a medical school. Brazil has 12, Mexico 8, Argentina 4; Bolivia, Chile, Colombia, Ecuador, Nicaragua and Venezuela 3, and the others each 1. According to Moll, these schools graduate about 3,000 physicians each year from a total enrolment in the medical schools of more than 20,000 students.

The full time teacher is almost nonexistent in Latin America, and the budgets of the medical schools are completely inadequate. Most of these medical schools spend something under $300 per student per year on medical education. Moll condemned particularly the fondness of both faculty and students in the medical schools of Latin America for politics, and he referred to the manner in which students are misused by political leaders in controlling Latin American medical education.

When Abraham Flexner[2] published his considerations of medical education in 1925, he contrasted the type of teaching in French, English and German medical schools with that prevailing in the United States. The system that prevailed in France and Spain has been the model for most Latin American medical education. There are some exceptions, as will be pointed out later. Abraham Flexner pointed out that France produced only one work of any significance in the field of medical education; namely, a book by Claude Bernard published in 1865, which dealt with the logic of research but which made no reference to the organization of a medical school. In both France and Great Britain medical schools grew out of hospitals. Students were essentially disciples of individual masters. This method is conducive to the encouragement of occasional genius but is inefficient and inadequate when concerned with the education and discipline of considerable numbers of students who wish to practice a profession. These generalizations are significant in relation to such criticisms and praise as are warranted for the medicine of Latin America.

Most of what I say here is based on personal observation of many medical schools and hospitals in a tour through Latin America in July and August 1947. I viewed at first hand a considerable number of medical schools, hospitals and institutions of research. I visited areas inhabited largely by the rich but also great sections of large cities inhabited by the poor. I went into some rural areas of Brazil, Chile, Peru, Guatemala and Mexico and saw the medical care available in villages. This experience I have supplemented, as far as possible, by studying all of the available medical and popular writings on medicine and health in Latin America. What has been published is meager, superficial, hearsay, undocumented, impressionistic and thus grossly inadequate. Nowhere in recent years, except for the paper by Weiskotten relative to conditions in Peru, is there an enlightened, honest survey of a medical educational institution in Latin America. Visitors from North America are dined and entertained by the leaders of Latin American medicine with a hospitality that is unequalled in any great country that I have ever visited on the Continent or even in the United States. Visitors are given opportunity to see the magnificent achievements in the research institutions; they may walk through the wards and visit the private rooms of the leading hospitals. They may speak to the assembled faculties and students of the medical schools. Yet they have not, as far as I have been able to determine, been able to make an accurate study of the quality of medical teaching, the available medical facilities, the libraries, the laboratories and all of the other factors by which we are accustomed to judge the quality of medical education in the United States. Medical licensure is political, and I shall consider that further later in this paper.

Perhaps a statement in the biography of the Drs. Mayo merits quotation. Dr. Will Mayo visited Latin America with Dr. Franklin Martin in 1920. In the biography Miss Clapesattle[3] said:

> The spaciousness of the hospital and medical school buildings and the elaborately landscaped gardens surrounding them amazed the visitors from the United States. Nor could they find any fault with the instruction offered. Throughout South America the medical course was seven years in length and the examinations were so exacting that few North American or European surgeons could pass them, as they must in order to receive a license to practice. In the hospitals the visitors could criticize only the general indifference to screens at the windows and the scarcity of trained nurses. . . . Dr. Will summarized his impressions by declaring that the men he had watched operate were "the equal of any representative group from any country in the world."

I do not depreciate this observation because I saw research in South America carried on by competent men in institutions of the highest quality. The work of the Oswaldo Cruz Institute near Rio de Janeiro and of the Butantan Institute at São Paulo; of the institute in Buenos Aires headed by Houssay, recent winner of the Nobel prize, and work on the heart by Cossio and Taquini and Capdehourat is equivalent to the best in North America, as are the institute which Castex has carried on his research and the institute founded by Samper in Colombia. Chile has for many years had a law requiring every person who dies in a hospital to be submitted to a postmortem examination. The necropsies are conducted by competent pathologists. Thus they are superior to North America in this aspect of medical work. In Peru there is in process of construction the National Institute of Andean Biology (for the study of high altitude physiology) which will be unique. Already the contributions of Peruvian leaders like Monge and Hurtado are well known throughout the world. In México, D. F., the work carried on under Zubirán in the Hospital de Enfermedades de la Nutricion, by Chavez and Rosenblueth in the Instituto de Cardiologia de Mexico, and by a group of well qualified men in the hospital for children's diseases is worthy of world wide emulation. The School of Tropical Medicine in our own Puerto Rico is an amazing institution in which competent research has been carried on for some years on funds utterly inadequate to the possibilities. Genius is not the peculiar possession of any single nation or race; nor does it require perfection of facilities that it may thrive. In many areas of South America, moreover, men of extraordinarily brilliant minds and exceeding competence in research and practice can be found. These, however, are extraordinary manifestations which rise, like Mt. Everest, above a great valley of inertia and desuetude characteristic of the majority of medical education and research in Latin America.

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[1] Moll, A. A.: Aesculapius in Latin America, Philadelphia, W. B. Saunders Company, 1944.

[2] Flexner, A.: Medical Education, New York, The Macmillan Company, 1925, pp. 15, 19 and 26.

[3] Clapesattle, H. B.: The Doctors Mayo, Minneapolis, University of Minnesota Press, 1941, pp. 582 and 584.

I pay this tribute to Latin America because an editorial[4] which I wrote about Brazil and which was published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in August 1947 aroused considerable furore in the medical profession of that country. Medical societies held meetings devoted wholly to a discussion of the criticisms made in the editorial. Medical periodicals published long editorials discussing the matter pro and con. A former minister of education and public health, Prof. Ernesto de Souza Campos, replied to the editorial in a newspaper. Several young members of the Brazilian College of Surgeons wrote polemics that were literally brilliant but without adequate evidence in reply to the specific criticisms. One of those writers considered the editorial a breach of the good neighbor policy. Several newspapers sent out inquiring reporters to ask great numbers of physicians what they thought of the editorial, and a considerable number had the courage to admit the veracity of some of the indictments. Actually, the editorial served the purpose of indicating the truth of one particular indictment. The editorial said:

> The young men who have studied medicine in the United States need all the encouragement and help we can continue to give them after they return home to practice. Perhaps one or more generations will have to pass before the real significance of what they are doing will be recognized in their own country. In the meantime they battle against the status quo. The professorships in the medical schools are appointments made for life; the staff positions in most of the public hospitals are controlled by political influence; the small private hospitals are inadequate and commercial and subject to all the abuses that were only too well known in the United States during a similar period in our own evolution.

Fortunately, several Brazilian leaders have now spoken in support of some of the statements that have been made. Professor de Carvalho, vice president of the Society of Social Medicine, said, "The majority of the criticisms contained in the article is justified," and a letter just published in the leading medical periodical of Brazil calls attention to the fact that polemic and literary discussion will not supply the medical schools with laboratories, libraries and modern methods of teaching.

MEDICAL LICENSURE

Medical licensure began in South America in 1535, when Charles V ruled that in America the same restrictions on the practice of medicine, surgery and pharmacy would apply as in Castile. The evolution of medical licensure in Latin America is detailed by Moll in "Aesculapius in Latin America." After the beginning of the nineteenth century the medical leaders gradually shook off the jurisdiction of governmental agencies in licensing physicians. The powers to license now rest chiefly in the hands of the national health or educational authorities and occasionally in special boards. Today practice by foreign physicians in Latin America is not easy. In order to obtain a license to practice, a physician coming from outside the country must validate his diploma, and it must be properly attested by a diplomatic or consular representative of the country from which he comes. The applicant in practically every instance must take examinations in all the subjects in the local medical curriculum. In some others the examinations must be taken in the language of the country concerned. The examination fees vary from $100 to $1,300. The tendency in the past has been to grant mutual recognition of medical diplomas between some of the Latin American countries and others, but most Latin American countries still make it difficult even for other Latin Americans to practice.

Among the most stimulating works recently published on Latin America is the book by Charles Morrow Wilson[5] called "Ambassadors in White." Mr Wilson, through his contacts with the governmental agencies during the war, had opportunity to observe closely the difficulties in advancing medical science and medical practice in Latin America. He recognized embarrassment caused by present restrictions on free interchange of students and physicians between North and South America. Most Latin American countries limit and in some instances completely prohibit the licensing of doctors from other countries. Mr. Wilson expressed the opinion that better reciprocity in medical licensing rules is needed, and he said, "It is unquestionably attainable." He also recommended increase in the exchange of government and private scholarships for medical students. "While receiving more Latin American medical students in our own medical colleges," he said, "it would be beneficial to dispatch more of our own students to universities and research institutions in Latin America." Incidentally, the problem of the Latin American student who comes to North America to pursue further studies is a complex and difficult one. He finds himself in a new environment in which discipline prevails far beyond anything that he has observed at home

The place of the student in the control of the Latin American medical school has evolved into one of increasing political power rather than suitable discipline. Commenting on the relation of the student to the Latin American medical school, Aristides A. Moll said

> Yet little ultimate good is obtained and often much harm is done when immature minds persist in dictating the type of teaching, forcing the selection of professors and enforcing their demands through thoughtless strikes and vociferous protests. . . . The danger also remains that the exciting lure of street meetings and irresponsible movements may lead away from the more severe discipline of the classroom and the study halls.

The situation is not recent and not necessarily associated with the present trends in social attitudes throughout the world. It is part and parcel of the system of medical education. When Hans Zinsser[6] visited Mexico around 1912, he made the following comment on the University of Mexico: "The University of Mexico is the student's paradise. Students have a voice in the University government. If a professor flunks too many pupils, out he goes on his ear. Not even the Deans are safe."

By contrast the institution of higher education in the United States conceives that educational discipline is an integral part of the education. William Henry Welch[7] said once: "No man can study medicine or any profession who has not gone through a course of study at least equal to a college course at Yale or Harvard." And again, "It is not only or chiefly the quantity of knowledge which the student takes with him from the school which will help him in his future work; it is also the quality of mind, the methods of work, the disciplined habit of correct reasoning, the way of looking at medical problems." Here in a single paragraph is essentially the ingredient missing from most Latin American medical education.

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[4] Medicine in Brazil, editorial, J. A. M. A. **134:** 1427 (Aug. 16) 1947.

[5] Wilson, C. M.: Ambassadors in White: The Story of Tropical Medicine, New York, Henry Holt & Company, Inc., 1942.

[6] Zinsser, H.: As I Remember Him, the Biography of R. S., Boston, Little, Brown & Company, 1940, pp. 346 and 347.

[7] Flexner, S., and Flexner, J. T.: William Henry Welch and the Heroic Age of American Medicine, New York, Viking Press, Inc., 1941, pp. 41 and 223.

Since my visit to South America I have been endeavoring to secure some reliable data concerning fundamental factors in medical education, such as the qualifications for admission of students, the number of students admitted in relation to the available facilities, the quantity and quality of equipment in anatomy, physiology and pathology and in the libraries, the nature of administration, the available budget, the records of attendance by students and faculty and similar matters. Some of the leaders in some of the countries have been most cooperative in assisting with the necessary data. Unfortunately, others have been negligent and some have been resistant.

PUERTO RICO

Puerto Rico does not have a medical school and is thus dependent on other countries for training the necessary physicians. Recently excellent hospitals have been built, and they are well conducted.

The suggestion has been made in Puerto Rico that the needs of the rural and low income population could be met by providing great numbers of low quality physicians. This movement is political. The nation must depend on other countries to educate the young men who wish to be physicians and who would return to the island to practice. Opportunities must be developed in the United States for the training of Puerto Ricans in medical science.

TRINIDAD

Port of Spain is a British possession with segregated areas devoted to the British population, the United States army and navy posts, which have been leased from Trinidad, and the considerable area occupied by the population, which is a mixture of racial types from all over the world.

The United States hospitals, which care only for the people of the United States in our reservations, are of the highest quality developed by our armed forces. The great British hospital, which suffers under the stringency of rigid British governmental economy, has twenty maternity beds to care for 2,000 cases annually. There is one physician for every 4,000 persons, and one hospital bed for every 2,000. If a moderate rate of four or five hospital beds for every thousand persons is accepted as standard, the medical facilities of Trinidad for the population are grossly inadequate. Such statistics as are available indicate a general state of health well below the standard of most civilized countries.

BRAZIL

Belém.—In Belem, Brazil, there is a medical school, rather primitive, which is one of the twelve medical schools of Brazil. I visited the school with Dr. Orlando Lima, who is a gynecologist and surgeon, and saw the institution while the students were on vacation. He told me that the school graduates twelve students annually. Such facilities as I saw, which included those for anatomy, physiology and pathology, were on a par with the least qualified proprietary medical schools of the United States in the period between 1900 and 1910. The question naturally arises as to whether physicians educated under such circumstances are better than no physicians at all.

The community has two hospitals—one, a government institution which is the typical Latin American hospital, without screening, with inadequate laundry facilities, and the other a hospital built and staffed by the Institute of Inter-American Affairs.

Rio de Janeiro.—The medical schools in Rio de Janeiro and elsewhere in Brazil are conducted by the government. There is one private medical school in Brazil; namely, the one conducted by a Catholic group in São Paulo. The latter has the virtue of independence but suffers unfortunately from a great lack of funds.

The fees charged in most of the schools are utterly inadequate to the conduct of an institution which must depend to some extent on students' fees; teachers must depend on practice for their maintenance, since maximums paid by governments are in most instances well under $1,000.

During my stay in Rio de Janeiro the schools were on vacation. However, I had opportunity to speak at some length with some medical leaders and at considerable length with many of the young men who had done graduate study during recent years in the United States. The most frequent commentary was the difficulty experienced by these young men in gaining opportunity to teach or do research in the medical schools.

There is a woeful lack of general hospital facilities in Brazil as elsewhere.* I did, however, see a beautiful hospital just completed for the use of employees of the government. This hospital will care for such employees with a salaried staff of physicians. There are as many private rooms as beds in the wards, and higher salaried employees are permitted to pay extra for such accommodations. It is planned to conduct this hospital according to North American lines. One of the chief difficulties anticipated was the securing of competent laboratory technicians.

São Paulo.—The institutions of medicine in São Paulo, which is apparently the most rapidly growing city in South America, are far superior, in general, to those in Rio de Janeiro or elsewhere in Brazil.

The conspicuous medical problem of São Paulo is leprosy. Apparently there are some 50,000 cases in the State of São Paulo with many sanatoriums and dispensaries for the care of lepers and their children.

Near São Paulo is the state institute for the manufacture of serums, vaccines and other biologic preparations, including particularly snake venoms and venines.

The medical school in São Paulo conducted by the government is fully up to North American standards. This institution was largely developed through aid from the Rockefeller Foundation. Its laboratories, teaching units and equipment are of the highest order. Hospitals for orthopedics, obstetrics and the care of children are in process of construction. Also in process is a great nursing school, and teachers have been obtained from North America to establish this school on modern lines. If the institution is able to maintain reasonable limits on the admission of students, there is no reason why the medical school at São Paulo should not continue to be a most acceptable institution.

In process of construction also is another medical school known as the Escola Paulista de Medicina, the only private medical school in Brazil. Almost completed is a great new hospital with sufficient beds to supply teaching services in all of the medical specialties and in association with this hospital a modern nursing school.

Unfortunately the equipment for teaching anatomy, physiology, pathology and the basic sciences is meager and obsolete. The library consists of some hundreds of books and a few score periodicals which are in close rumor was that this school was maintained largely from the fees of wealthy students who had been unable to gain admission to the medical school conducted by the government. The fees for this institution were obviously far above those of any other medical school in South America.

I would be remiss if I did not mention the great hospital conducted in Santos by Dr. Pedroso, who has been thoroughly trained in hospital management in the United States and elsewhere. This institution is outstanding in its appearance, in the quality of its work and in its management. The hospital was founded in 1543 and has undergone an evolution into an institution comparable to the best in other countries.

URUGUAY

Montevideo.—The school of medicine in Montevideo, while not as modern in its construction as others, is a fine example of the best possible development of medical education according to the plans prevailing in France and Spain. The medical school is conducted by Dr. Chifflet with administrative skill. Pathology is taught with a magnificent collection of gross specimens closely correlated with slides and case histories, so that the teaching of pathology can be especially commended. The division of anatomy has adequate provision for embryology and histology. The department of physiology, recently reconstructed, has facilities second to none elsewhere, and by an arrangement with the city dog pound there is national provision for suitable experimentation on animals. The library contains 108,000 volumes with special departmental libraries, with reading rooms for French, Spanish and English publications, and there is an exchange system with a package library service.

The specific disease of this area is hydatid cyst, and there is a world famous collection of anatomic specimens. Incidentally, an exhibit from this collection received a gold medal in the Scientific Exhibit of the American Medical Association in 1942.

Near the city of Montevideo, high on a hill, is a new hospital reminiscent of our great medical centers with which will be associated a new medical school building. This hospital has been many years in process of construction, and when I saw it, it was boarded up awaiting the provision of further funds.

ARGENTINA

The problems of medicine in Argentina are primarily political.[9] The situation that prevails today in Argentina can be duplicated only by some of the strange circumstances that developed in the totalitarian countries during the years of the war.

The leading medical school of Argentina in Buenos Aires has a magnificent building built by Jose Arce. I doubt that there is any other medical school anywhere in the world with a physical structure that is its equivalent. The curriculum is adequate to the method of teaching. At the time when I was in Argentina, the medical school was still occupying the old building and the old hospitals, but the dental school was in process of installation in the new building with its vast corridors and marble columns that would dwarf even our most ostentatious capitol buildings. The dean of both the medical and dental schools, at the time I went through the building with him, was a former dentist in the army of Argentina.

There are many good hospitals in Buenos Aires and some research institutions conducted by Drs. Castex and Taquini which, by the quality of their equipment and the quality of their work, as well, are worthy of high praise. The institute of cardiology is one of the best equipped establishments for the study of hypertensive heart disease, the effects of fatigue and electro cardiography anywhere available. Twelve beds are held exclusively for research on the heart. The institute conducted by Dr. Castex offers opportunity to men of great repute for modern scientific research, and the publications that come from these institutes are widely known. Unfortunately, the Peron government fell afoul of the independence of some of the greatest teachers of our time. Dr. Castex is no longer associated with the medical school. Dr. Houssay, who recently received the Nobel prize for his studies of the pituitary, was eliminated from the school, was deprived of his laboratories and library and is at present working in a reconstructed flat building, where eleven devoted students followed him.

Most of the voluntary nonprofit hospitals had formerly derived their income from a special organization known as a Beneficencia. For many years the custom had been for the wife of the President to be the honorary president of this organization. Social attitudes in relation to the present president of Argentina resulted in a revolution in the organization of the Beneficencia, and many of the leading hospitals formerly used for teaching purposes are now finding it difficult to continue to exist and in some instances are without any adequate budget.

On Jan. 1, 1948, a new law became effective in Argentina whereby faculties are now controlled under a somewhat totalitarian system. Neither professors nor students are allowed to act directly or indirectly in politics but must confine themselves strictly to their educational functions The head of the university is designated by the government for a term of three years and must refrain rigidly from any activity not related to his official position. He is advised by a council composed of the dean and ten counselors who are elected by secret vote of the professors. The dean is no longer elected by the professors and the students but chosen from a list of three names presented by the rector to the directing council of the faculty. All appointments are for terms of three years. The universities are to be supported by a tax of 2 per cent, which must be paid by every employer on every payroll paid in Argentina except those of domestic servants and government employees. Some hundreds of the leading teachers have resigned from the faculty in Buenos Aires. A few have been transferred to other universities. Among the facilities of Buenos Aires is a magnificent cancer center with a high quality of modern equipment. This was formerly under Dr. Roffo, of whom no one now says much except to make an expressive shrug of the shoulders.

As a result of the changing social points of view developing in Argentina, the medical school is overwhelmed with students far beyond its ability to provide adequate instruction. There were 1,146 students in 1946; 1,492 in 1947. In previous years the number was 500.

The Argentine has more physicians in proportion to its population than any other country in South America It is estimated that there is 1 physician to 835 persons, as contrasted with 1 to 775 in the United States, but with 1 physician to 13,000 in Guatemala, 1 physician to 6,000 in Peru and Bolivia and 1 physician to 3,000 in Brazil. Moreover, the concentration of physicians is almost wholly in Buenos Aires and a few lesser cities.

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[9] Greenup, R., and Greenup, L.: Revolution Before Breakfast, Chapel Hill, N. C., University of North Carolina Press, 1947, p. 207.

In the provinces the situation is far worse than in any similar rural area in North America.

CHILE

The school of medicine of the University of Chile has excellent departments of anatomy and a new department of physiology in process of construction; research goes on constantly. Chile has had for many years a law that there must be a postmortem examination on every patient who dies in the hospital. One sees four or five postmortem examinations going on constantly, and there are available rooms with the most modern projection facilities for conferences to which diagnosticians, surgeons and pathologists may discuss the results of their study.

There are three universities in Chile. The University of Chile itself is a national institution supported by the government and ruled by a statute which gives it absolute freedom from political or personal interference. The rector, who is equivalent to the president of the university, is elected by a council of professors. They present a list of three names to the president of the Republic, who traditionally selects the first name on the list as his choice. The university is controlled by a governing body formed by the deans of the different faculties and by those members who are appointed by the president.

The Catholic university is supported by the Catholic church and the Universidad de Concepcion is also private and is supported by a lottery. Theoretically both of these universities are under the control of the University of Chile, which arranges the curriculum, conducts the examinations and confers the titles in professions that require recognition, such as law and medicine. Neither of these two universities has developed beyond the fifth year of medicine. Students of the sixth year go to the University of Chile, where they finish their preparation. The program of instruction follows the French type.

The lower grades are followed by courses which lead to the degree of bachelor, representing two or three years beyond the high school education in the United States. Then comes the medical career, which covers seven years. Students usually cannot complete their duties and provide a thesis on time, so that they receive their diplomas in the eighth year. The students begin to go to the hospitals in the third year. The hospitals are supported by Beneficencias and by the government social security system.

Studies are free of charge, and their fees are nominal At present there are about 1,000 persons in the medical school of the University of Chile covering the seven year period. Whereas many hundreds enter in the first year, only 120 are graduated. Anatomy is studied the first two years. There are fifty tables and about 200 bodies available each year. Of these 200 bodies, 140 have been previously submitted to postmortem examinations. Physiology is most advanced, with a full time faculty. Students experiment on all types of animals. There are numerous research laboratories.

The library of the medical school is at present being reorganized by Mr. Edward Heiliger, sent to Chile by the American Library Association. In the library of the medical school there are 15,100 volumes, of which only 1,550 are used regularly. The large collection is in process of cataloguing. There are great collections of periodicals. The library now receives regularly 249 periodicals.

After graduation from the University of Chile the student receives the degree of doctor of surgery, which gives him the right to practice medicine and surgery in Chile.

Information concerning the University of Chile medical school was obtained not only by a direct inspection of every department and all of the hospitals associated with the school but also confidentially from two completely independent sources.

The Chileans delight in being called the Yankees of South America. Their medical leaders are capable. Many of them have contributed to scientific medical periodical literature throughout the world.

The great needs of Chile are distribution of medical service to the rural areas, schools of nursing and methods of control of their leading problem, which is tuberculosis. There has been complete cooperation between the Institute of Inter-American Affairs and the Chilean government. Our government has been of aid in building a great new sanatorium for tuberculosis known as the Trudeau Sanatorium and in aiding in the construction of an institute for the study of bacteriology and preventive medicine. In connection with this institute I saw the only establishment in all of South America for the manufacture of penicillin. It produces 100,000,000 units daily, or 3,000,000,000 units per month. In the United States our present production exceeds 1,200,000,000,000,000 units per month.

The great problem of all of the Latin American countries is tuberculosis, where it is still captain of the men of death. On the west coast of South America particularly it is the number one problem. The attack is being made by the establishment of diagnostic centers with adequate x-ray equipment, by providing information regarding suitable nutrition and rest and by extensive experimentation with BCG vaccination.

PERU

Dr. H. G. Weiskotten,[10] chairman of the Council on Medical Education and Hospitals, visited Peru recently and published in the *Journal of the Association of American Medical Colleges*, November 1947, a report of his visit. His study of medical education in Peru was based on accurate investigation of the available facilities and represents the type of study that should be given to every medical college in South America. I shall not elaborate on the details that he presents other than to record changes that have occurred since his visit and to emphasize recent aspects of medical education in Peru that need such emphasis.

There is a considerable excess of students for the facilities available in the medical school. The school could reasonably accommodate 80 to 100 students in the first year. Up to 1942 it was limited to 70. The class entering in 1944 numbered 250, and the class entering in 1947 was between 350 and 400.

Instruction in the basic sciences is therefore theoretical. A teacher in histology told me that he had to accommodate the teaching of histology to 300 students with twenty microscopes. The teaching staff has been increased to meet the great number of students, but obviously the faculty members, who are clinicians, find both time and facilities inadequate to the demands. As a consequence of a law approved by the Peruvian congress in 1946, the governing council of the faculty is composed of two thirds professors and one third medical students. Among the students are some who have just entered the medical school. The intervention of students in the administration and technical activities of the faculty is unfortunate, especially since students now entering have less cultural background than those who entered formerly. Because of the intervention of the students in administration, discipline is disappearing. Examinations are modified to meet requirements set up by the students. A leading member of the faculty informed me that the influence of men who have returned to Peru from other countries has resulted in great stimulus to research. In process of construction is a laboratory for the study of high altitude physiology under Drs. Monge and Hurtado, who are world renowned for their contributions to this field.

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[10] Weiskotten, H. G.: Medical Education and Medical Licensure J. A. Am. Coll. **22**: 331 (Nov.) 1947.

One of the greatest difficulties of all education in Peru and in many other Latin American countries is the existence of innumerable holidays. Not only are there the usual holidays related to the church but holidays declared for military victories resulting from innumerable wars and revolutions, holidays declared in honor of the deaths of recent politicians and holidays declared by the government apparently at will. With one medical leader I went over the total number of days that were already established as holidays for the remaining four months of 1947 with an indication of from thirty-eight to fifty-eight days likely to be lost by such occurrences. A student may be absent from the school for 20 per cent of the time, if the governing board already mentioned decides his capacity is sufficient to permit this.

The faculty-student board determines the qualifications of applicants for admission to the school of medicine. In recent years practically all applicants have been accepted without examination, have completed the required premedical studies, which included a total of thirteen years from entrance into the first grade of school at the age of 6. There are no full time faculty members or officials in the school except the secretary.

An interesting innovation which became effective in 1947 provides that the students may exercise a right of veto once every six years. Any faculty member may be forced to resign by the board of students if they vote a veto.

In general, all buildings, classrooms, laboratories and teaching facilities are deficient and inadequate except for physiology and pathology, which are well housed with animal and laboratory facilities. The library of the medical school owns 12,000 books and has a qualified librarian. The library receives 250 different medical journals each month. The funds available for the school are completely inadequate. The tuition cost is less than $40 per year, and all equipment, including microscopes, must be provided by the school. There are 300 bodies available for dissection and seventy-three dissection tables. There are eight tables for the study of animal physiology.

Obviously the prevailing system of medical education makes it difficult to believe that the average student coming from such a system of medical education could pursue his medical education to higher levels at the same time as students graduated from the competent schools of medicine in the United States who are undertaking similar work.

I have omitted consideration of the social system and the hospitals, since they constitute a special subject. The social security system in Peru covers 250,000 insured workers out of the millions of inhabitants. Those covered by the social security system can be admitted to a number of hospitals which are conducted on a high level. The mass of the people are cared for in charity institutions, where thousands of patients occupy space available for hundreds and where there is practically a complete absence of nursing service and even good sanitation. Typical of the situation is the fact that in all of Peru there is only one modern incubator for the care of the prematurely born child

COLOMBIA

The minister of health of Colombia is changed with considerable frequency, and the functions of care of the public health and medical education are therefore administered in an unstable environment. The private hospitals are developed along modern lines, but the public institutions function in a sadly unsanitary and unstable manner. I visited a public hospital in which the private patients received excellent care, but the charity patients were sad indeed.

The school of medicine is an old structure with too many students for its facilities. The department of physiology is efficient, but the department of pathology is woefully weak. The library is ancient. There seemed to be not only a lack of information concerning great advances in medicine made in North America but somewhat of a disinclination to be disturbed about it. The scientific literature referred to is for the most part Spanish and French. While graduates of the University of Colombia have in the past come to the United States for advanced education and have done rather well, there is no reason to believe that the quality of education now is as good as it was previously. The difficulty lies unquestionably in the lack of faculty and the depreciation of the facilities and the tremendous disinclination to introduce new ideas or new blood.

PANAMA

Panama is without a medical school. Its medical profession must, therefore, obtain its education elsewhere. The lack of adequate teaching facilities would make the introduction of a modern medical school exceedingly difficult. Even more serious would be the securing of sufficient funds to operate a good medical school.

GUATEMALA

In Guatemala City the medical school has 500 students in the first year, and about 50 graduate in the sixth year. There are a few hundred books in the library. The equipment, except for a new department of experimental surgery, is obsolete.

There is a great general hospital which cares for some 1,800 patients in space adequate for 800. Serious attempts are being made to modernize this hospital. A new hospital called the Roosevelt Hospital, of one thousand beds, is in process of construction. The San Jose Hospital, operated by a charity order, does apparently good work for the underprivileged with inadequate equipment, facilities and staff.

Guatemala[11] is a nation with some 3,500,000 people, 80 per cent of whom are illiterate Indians, undersize, undernourished and apathetic.

At the San Jose Hospital, which is built in the Spanish style with the wards around patios, it was startling to observe patients with cancer sit in the patio with considerable numbers of vultures on the roofs nearby and even feeding in the gardens.

MEXICO

The medical school of the National University in Mexico is under the administration of a council elected by the faculty of the university with the director as chairman. An admissions committee is urging higher standards of admission. The student must attend at least 80 per cent of the lectures and demonstrations to get credit for any given subject. The buildings are old, but the government contemplates a new building in 1949. The clinical facilities are excellent, with great numbers of hospitals supplying thousands of beds. About 230 necropsies are done each month for teaching purposes. The preprofessional educational system in Mexico follows closely the European plan already mentioned. First a boy has six years of primary instruction and five years of preparatory school corresponding to the Gymnasium of Germany, then a medical school with six years in curriculum.

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[11] Kelsey, V., and Osborne, L. D.: Four Keys to Guatemala, New York, Funk & Wagnalls Company, 1946, p. 196.

The number of students registered in the freshman class is 900, but it has been limited to 700 for September 1948, and there is a hope of continued limiting of admission to 500. The school certainly does not have the facilities for such great numbers, and the number graduating in the sixth year is far below the number admitted, representing approximately 150.

There are many excellent libraries. Recently the Institute of Inter-American Affairs donated 2,000 new American textbooks to the library of the school of medicine. In physiology there are ten tables with equipment available for studies on the dog, and that number is to be increased to twenty-five in the next year. The university has just received a grant of $100,000 for improvement of its laboratories in teaching the basic sciences.

There are some provincial medical schools which are far behind the national school. There is a military medical school which is exceedingly careful about the admission of students, and there is a military hospital for advanced training which is amazing in its quality.

Much of the credit for the advancement of teaching of medicine in Mexico should go to Dr. Salvador Zubiran, at present president of the University of Mexico and also director of the institute for nutrition and research in metabolism. He is far sighted, constantly aware of progress elsewhere in the world, and earnest in promoting high quality of medical education. There is an institute for the study of cardiology directed by Chavez which is superior to any similar facilities in the United States. The new children's hospital associated with the general hospital has five hundred and fifty beds, and the quality of the service is again of the highest. A new maternity hospital with four hundred beds is in process of construction, and the plans have been drawn for rebuilding the general hospital with all services providing one thousand, two hundred beds in a modern institution.

SUMMARY

The fundamental inadequacy of the medical teaching in Latin America is admission of students to the freshman class far beyond the ability of the school to provide adequate education in the basic medical sciences, including particularly anatomy and physiology. The great number of students makes teaching by lecture and demonstration the method of choice rather than individual participation.

The internship as such is not used in most Latin American countries. The assistantship is emphasized, but the students remain for long periods under the professors. Nursing is so infrequent as to be for the vast mass of people relatively unknown. Customarily, patients come into the hospitals accompanied by a member of the family, who remains to care for them for the periods of serious illness. Discipline is lacking, as is inevitable when students join in the administration of an institution.

Public health in Latin America is in the embryo stage. Death rates from tuberculosis are vastly in excess of those in the United States, and in all Latin American countries tuberculosis is first in the list of causes of death. In the United States it is seventh. Infant mortality, another measure of public health, is accompanied with rates so high as to be unbelievable. Thus in Chile I was told that one half of the children who are born die before they are 9 years old. Nevertheless, all statistics must be viewed askance, since modern biometrics are simply lacking. In most South American countries a small wealthy upper class is associated with a tremendous undernourished, impoverished and illiterate lower class.

Because of lack of access to modern periodical medical literature during the period of war, physicians have not kept abreast of advances in medical science. There is a tendency to overindulge in hypodermic medication. Knowledge of allergy has not progressed as it has in the United States. Pharmaceutic agencies, many of them branches of North American organizations, continue to supply preparations representing the worst type of polypharmacy, including mixtures of inefficient glandular products and vitamin combinations that are already beginning to disappear in North American medicine.

The special problems of Latin America include malaria, leprosy, typhoid, dysenteries and undernutrition, in addition to tuberculosis and the rarer tropical diseases.

There should be for the advancement of medical education in Latin America a competent survey of each school of medicine of the type made by Dr. Weiskotten in Peru, with a recommendation to the faculty and to the government as to the procedures that should be followed in bringing about progress.

Medical education is vital and fundamental to improvement of the public health and to the development of adequate leadership for overcoming the controllable diseases that now constitute a tremendous burden for the people. The advancement of sanitation in order to control unnecessary mortality from the diseases that have been mentioned is fundamental to improving the productive capacity of the people of these nations. The situation constitutes a vicious circle. The sick people cannot produce. Without production funds are inadequate to make progress even against sickness.

Strictly from the point of view of medical education, I must emphasize that the vast majority of Latin American nations do not welcome physicians from North America and make well nigh impossible the securing of a license. Nevertheless, most of our licensing boards will admit graduates of leading Latin American medical schools to the examinations, and considerable numbers of them have qualified in the past to practice in the United States. However, a suitable inspection of the medical schools would undoubtedly indicate that not more than five or six out of the present approximately fifty-four schools could today meet our minimum standards. Many of the graduates of the Latin American schools are coming to the United States for graduate study. For the most part they come with inadequate preparation in the basic medical sciences, and they find exceedingly difficult continuous pursuit of advanced study. When they return, local political conditions make it difficult for them to contribute even in their own countries the knowledge and the practice that they have developed in their graduate study.

May I emphasize again that genius is not the particular property of any nation or race, nor does it require perfect facilities that it may thrive. In many parts of South America men of extraordinarily brilliant minds and exceeding competence in the field of medical research and medical practice can be found. Every possible encouragement should be given to such men to enable them to do the most that can be done for raising the general standard of medical education and medical practice in the Latin American countries.

LICENSURE EVALUATION OF EUROPEAN MEDICAL GRADUATES

JACOB L. LOCHNER Jr., M.D.
Albany, N. Y.

The Evaluation of Foreign Medical Credentials sounds uninteresting, and when Dr. Bierring asked me to speak at this meeting he suggested the title "Implications of Foreign Medical Graduates in Licensure," which to me seemed to be of more interest. This short presentation is therefore really a combination of both titles. I believe that you all know and realize that New York state has undoubtedly licensed more foreign born and foreign educated physicians than any other state in the Union. This large influx of foreign physicians in New York state began about 1926, and at that time the University of the State of New York was candidly unprepared to evaluate their credentials properly. As soon as the Board of Regents became aware of this situation they attempted to remedy it by requiring that all foreign medical credentials be evaluated by the Assistant Commissioner for Higher and Professional Education.

To determine properly the actual scholastic and professional standing of each foreign school from which the applicant presented credentials for recognition, the department set about the task of studying thoroughly each separate national system of education not only as it applied to university or professional study but also as it applied to the entire educational program of the country in question. In order to make a thorough investigation, the department consulted the experts on foreign education in the Office of Education at Washington and obtained further information from the offices of the American Medical Association, from the deans of many American Medical Colleges and from the offices of various outstanding national educational organizations. The 1932 report of the Commission on Medical Education which was organized in 1925 by the Association of American Medical Colleges substantiated the evaluations made by the department. This commission included many outstanding authorities on medical education. As a result of this complete study it can be said that between 1850 and 1913 German medical education was as good as any in the world and better than that of many other nations. In Austria-Hungary, in Scandinavia, in Holland and in German-speaking Switzerland the university type of medical school developed as it had developed in Germany. Before 1910 there were no barriers to the free migration of students and professors from one country to another. Neutral countries were not materially affected in regard to medical education by World War I, except for certain financial difficulties. Medical education in Austria was seriously affected by Hitler in 1938. The same holds true of the medical schools in Czechoslovakia and Hungary. The status of Russian medical schools is and has been questionable since prior to 1917. Except for one university in Greece and one in Turkey medical education in the Balkan states is not considered the equivalent of American medical education. The same policy would apply to Spain and most Spanish-speaking countries.

PRESENT POLICY OF NEW YORK STATE BOARD

The department insists that each applicant's credentials continue to be examined entirely individually and accepted or rejected on their own merits.

The present policy of the department in regard to foreign medical education is that medical education begun in Europe after Jan. 1, 1940 will not be recognized for admission to the New York state medical licensing examination with the possible exception of medical study completed in the Universities of Cambridge or London in England, the University of Dublin in Ireland and the University of Ireland. They further require that on account of the impact of World War I on foreign medical education, no foreign medical license issued after 1914 could be endorsed without examination. The result of requiring medical applications to pass through the office of the Assistant Commissioner has given the department a complete record of the curriculums and standards of every medical school in continental Europe. In my opinion our records are even more complete than the records in the United States Department of Education in Washington, D. C. Under this policy we require every foreign-educated physician to submit his studentbooks, leaving certificates, diploma and license for medical practice. Now, what has been their success in passing the New York medical licensing examination? Their attitude has been, and strangely enough still is, that of arrogance and superiority. The majority have shown no friendliness or thankfulness to be allowed to come to this free and democratic country. They clearly resent being required to show their credentials and required to pass an examination. If they fail to pass they immediately make a loud cry and may complain to the Governor, a senator or an assemblyman that they answered perfectly and were being discriminated against. They always say that they know their rights, and yet most of them have been in this country only a short time. Not one out of a hundred candidates from approved schools will complain about the results of the examination yet many of the foreign physicians will complain! Do they come alone to complain? No! In practically every case they bring or send a member of the legislature, or even a member of Congress. For example a foreign-born physician who had taken our examination fourteen times without passing brought a member of the Senate to my office and insisted loudly that he knew as much as any American doctor and that he had answered the questions correctly and was being discriminated against because he was foreign born. I was able to convince the Senator that the answers were wrong, and I suggested that the doctor try the examination in some other state, which he did, and passed in his first try. The senator later thanked me for my advice.

The greatest number of foreign physicians were admitted to practice in our state in 1936-1937. During the next decade we licensed more foreign physicians each year than were licensed by all the other states

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Read before the Forty-Fourth Annual Congress on Medical Education and Licensure, Chicago, Feb. 10, 1948 together. During the war years there were of course only a few foreign physicians who were able to come to the United States. Since the war the number of foreign physicians has increased greatly, and by the number of letters which my office is receiving every week we can expect a considerable number in the next few years.

RESULTS OF EXAMINATIONS OF FOREIGN PHYSICIANS

The results of the New York state medical licensing examination by foreign physicians has not been good, and it has varied practically not at all throughout the years—the percentage of failures has been around 66. In 1938, 1,211 graduates of foreign medical schools took our licensing examination and 511 passed. In 1939, 1,770 foreign graduates were examined; 521 passed; in 1940, 1,644 foreign graduates were examined; 540 passed; in 1941, 1,558 were examined and 575 passed; from 1942 to 1946, 4,975 were examined and 2,878 passed. In 1946, 315 were examined and 106 passed. In going over our records from June 1945 through February 1947, I found the percentage of failures of foreign graduates to be between 72 and 78. I was asked to present statistics on these failures in regard to the basic science subjects as compared to the clinical subjects. My answer to that request is that they show no difference in failures in the basic sciences as compared to the clinical sciences. I would like to point out a strange coincidence—you all know that by special rules of the Board of Regents certain graduates of grade B schools were admitted to our licensing examinations—the results for Middlesex medical graduates in the first two or three examinations was nearly comparable to foreign graduates, while another unapproved school had results as good as the students from approved schools outside of the New York state schools. The answer to this discrepancy was easily explained, since all of the teachers of the basic sciences and most of the clinical subjects at Middlesex were found to be refugee physicians. It has been my opinion that foreign physicians should be required to serve two years in an approved hospital before being admitted to the medical licensing examination in order that they may become familiar with American methods, American ethics and that certain sympathetic understanding in regard to the relationship between physician and patient that is decidedly lacking in physicians educated abroad.

NATIONAL ASSOCIATION FOR RESETTLEMENT OF FOREIGN PHYSICIANS

I want to take this opportunity to bring to your attention the fact that there is at present functioning the "National Association for the Resettlement of Foreign Physicians." The work of this organization is fulfilling a distinct need. The foreign physician is questioned as to his training, experience and practice and advised how best to fit himself for assimilation into our professional life, and I am told that he is usually advised to take an internship and a refresher course, which is given at the expense of the organization. This in my opinion is one of the most logical approaches to the situation, and this organization deserves a great deal of credit.

POLICY OF VETERANS ADMINISTRATION

And now in closing I present what I consider our biggest and most serious problem: I was shocked and amazed some time ago to learn that the Veterans Administration in Washington was advising veterans that they may attend any medical school in Europe at government expense, and they enclosed a mimeographed list that as far as I was able to ascertain named every single medical school abroad. You realize the serious implications of such a policy—it means that if these men go abroad and study medicine they will undoubtedly return to this their native country, and if they are unable to gain admission to the examination in their home state a cry of sympathy will go up; unless I am mistaken this will result in extreme pressure being brought to bear for these our veterans. It is my opinion that we should take steps to stop it now; tomorrow will be too late. I corresponded with the Veterans Administration in Washington on November 17 and under date of December 1 I received a letter from the Director of Registration, Research Service for Vocational Rehabilitation and Education, and a mimeographed list of schools of medicine in Europe. The first paragraph reads as follows:

> Lists of schools of Medicine in Europe independently established or connected with universities, which have been approved, insofar as the Veterans Administration is concerned, for the education of veterans under the provisions of Public Law No. 346, the Servicemen's Readjustment Act of 1944, as amended, otherwise known as the G. I. Bill of Rights.

Then follows a paragraph marked "special note," advising veterans of the names of eighteen states that will not accept foreign medical education and urging the veterans to check with his state board of medical examiners as to the acceptability of work from the foreign medical school which he has under consideration. It is said in this note that the information on foreign medical education was taken from THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION of May 13, 1945. Even though some veterans do inquire of their state board, I think you will agree with me that many will study abroad without making any inquiry, solely on the authority of this list backed by the Veterans Administration. I therefore suggest that secretaries of state boards and the Council on Medical Education write to Mr. Sam H. Coile protesting against the present policy. New York state has more physicians per capita than any other state or country, and the requests for endorsements of other state licenses continue at a high rate.

PRESENT STATUS OF NATIONAL SCIENCE FOUNDATION LEGISLATION

HOMER W. SMITH, Sc.D.
New York

On June 5 of last year, the Senate passed the National Science Foundation bill S. 526 by a vote of 79 to 8. A parallel bill (representing H. R. 1815, 1830 and 1834, introduced by Representatives Case, Mills and Priest, respectively) was passed by acclaim in the House a few days later. In both bills the authority of the Foundation was vested in a Board of twenty-four members, who were to be appointed by the President. The two bills differed, however, in that the Senate bill gave the President the power to appoint the Director (with the advice and consent of the Senate) after receiving nominations from the Board, whereas in the House bill it was specified that the Director was to be appointed by, and was to be responsible to, the Board. The compromise bill agreed on in joint conference followed the House bill, in that it stipulated that

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From the New York University, College of Medicine.

Read before the Forty-Fourth Annual Congress on Medical Education and Licensure, Chicago, Feb. 9, 1948.

Table 5, which is fully explained in the text, has been omitted and will appear in the author's reprints.

the Director was to be appointed by the Board, and it was in this form that the legislation was sent to President Truman.

The President submitted this bill to pocket veto on August 6, giving his reasons in a memorandum which was widely publicized. Perhaps the most significant point in his memorandum was the statement that the proposed Foundation "would, in effect, vest the determination of vital national policies, the expenditure of large public funds and the administration of important government functions in a group of individuals who would be essentially private citizens. The proposed National Science Foundation would be divorced from control by the people to an extent that implies a distinct lack of faith in democratic processes."

New bills have been and will be introduced in the present session of Congress. One such bill, H. R. 4852, has already appeared in the House, sponsored by Representative Priest of Tennessee. This closely follows S. 526 as passed by the Senate last year, retaining the authority in the Board but giving the President the power to appoint the Director. Other bills are on their way. It is known that Senator Smith, Representative Wolverton, Mr. Steelman and Mr. Webb, of the Bureau of the Budget, have been attempting to find a compromise position satisfactory to the President, to the Congress and to scientists. A few days ago, Senator Smith's office advised me that they are optimistic that a satisfactory compromise will be reached within the next few weeks.

The President wants a National Science Foundation; Congress wants it, and the scientists want it. What, then, are the difficulties? The major difficulties still lie in the question of who is to run the foundation, and the relationship of the foundation to the over-all scientific program of the government.

THE STEELMAN REPORT

The importance of this issue can be appreciated only after looking at the total picture. Many important data have been made available to us in the recent report "Science and Public Policy" (Aug. 27, 1947), prepared at the President's request by Mr. John R. Steelman. In preparing this report Mr. Steelman had the advice of a number of persons both within and outside government circles, but that the report essentially reflects Mr. Steelman's personal opinions is clearly implied in his introduction.

From this report one learns that $1,160,000,000 was spent in the national research budget in 1947 by government, industry, the universities and miscellaneous sources. The government spent $625,000,000 (exclusive of atomic energy), industry $450,000,000 and the universities $45,000,000. It may seem that $1,000,000,000 is a large sum to spend on research and development, but it is to be noted that half of this sum represents governmental expenditures, and of this fraction almost five sixths ($500,000,000) was spent by the War and Navy Departments, overwhelmingly for research on weapons, vehicles, food, clothing, transportation and other matters of military importance. The universities' expenditures in all fields of science account for only 4 per cent of the total.

The Steelman Report recommends that by 1957 we should spend at least 1 per cent of our national income for research and development in the physical and biologic sciences, with much more emphasis on basic research, health and medicine and nonmilitary science than at present. This figure would exceed $2,200,000,000 a year, of which government funds would possibly supply half. Broken up by areas of research, the report suggests that $440,000,000 should be spent for basic research, $300,000,000 for medical research, $1,000,000,000 for nonmilitary development and $500,000,000 for military development

TABLE 1.—*National Research Budget, 1947*

		Millions
Total..		$1,160
Federal government		
War and Navy Departments	$500	
Other departments.	125	
		625*
Industry.		450
Universities.		45
Other		40

* Exclusive of atomic energy

TABLE 2.—*National Research Budget, Expenditures as of 1957 as Recommended by Steelman Report*

	Millions
Total	$2,240
Basic research.	440
Health and medical research	300
Nonmilitary development	1,000
Military development.	500

These figures are possibly optimistic, and it is perhaps more pertinent to examine the proposed federal research program for the coming fiscal year (1948-1949), as revealed in the President's recent budget message. Out of a total of nearly $40,000,000,000 in the National budget request, approximately $900,000,000, or about 2 per cent, is pointed toward research and development. The largest spender is, of course, the National defense establishment, where the Navy leads with $219,000,000, the Air Force comes second with $145,000,000, and the Army third with $81,000,000; with other expenditures by the National defense establishment, these items total $550,000,000. Exclusive of atomic energy, the largest single area of research in the national defense program is aviation. when one adds the budget of the National Advisory Committee on Aviation to the expenditures of the National defense establishment in this field, the aviation total is $220,000,000. The Atomic Energy Commission will spend $660,000,000, a figure which is made public for the first time and one which exceeds all other defense items added together. (This figure is not included in the $900,000,000 already mentioned.) The Department of Agriculture will spend $50,000,000; the National Advisory Committee on Aviation $48,000,000; the Department of Interior, $38,000,000; the Department of Commerce, $18,000,000, and the United States Public Health Service, $27,000,000. The President included in his budget $15,000,000 for the proposed National Science Foundation. He anticipated that only $5,000,000 would be needed in 1949 but that another

TABLE 3.—*Federal Budget, 1948-1949*

			Millions
Total		$39,700,000,000	
Research and development, total.			$900
National defense establishment			
Navy		$219	
Air force		145	
Army		81	550
Aviation	$220		*
(Atomic Energy Commission			660)*
Department of Agriculture			50
National Advisory Committee on Aviation			48
Department of Interior			38
Department of Commerce			18
U. S. Public Health Service.			27
National Science Foundation (1949, $5 million)			15

* This sum is not included in the $900,000,000 total

$10,000,000 would be required to cover contracts extending into later years.

The $27,000,000 for the Public Health Service is directed entirely at medical research and development.

TABLE 4.—*Budget Request, United States Public Health Service, 1948-1949*

	Millions
Total	$27.0
National Institute of Health	13.6
National Cancer Institute	8.3
Construction	5.0

Research fellowships and grants sponsored by the National Institute of Health account for $13,600,000, while the National Cancer Institute requires $8,300,000 for research activities related to the prevention and cure of cancer. It is proposed to use the remaining $5,000,000 for construction of new research facilities for general medical research, including cancer and cardiovascular diseases.

The Steelman Report estimates that a total of $110,000,000 from all sources was expended for medical research in 1947, of which industry supplied 45 per cent, federal, state and local governments 28 per cent, foundations 13 per cent, voluntary associations 9 per cent and other sources 5 per cent. These figures exclude university expenditures from their teaching budgets and other sums of university origin, since these figures are small and probably not subject to calculation. However, some of this $110,000,000 has, of course, been spent in the universities—most of the foundation money and a substantial part of industrial and federal money has gone into university research

The federal government's direct investment in medical research has increased from less than $5,000,000 per year in 1937 to more than $28,000,000 in 1947. The channels of expenditures for 1947 are shown in table 6. In 1937 less than $100,000 of federal money was spent on medical research in universities, private institutions and industry; this extramural financing has increased to over $10,000,000 in 1947, when it accounted for nearly one third of the total federal expenditure for medical research. The government is to an increasing extent getting its medical (as well as other) research work done outside its own laboratories.

TABLE 6.—*Federal Expenditures in Medical Research*

Fiscal 1946-1947		Thousands
Total		$28,150
War Department		6,040
Navy Department		5,940
Federal Security Agency	$12,585	13,585
Public Health Service	490	
Food and Drug Administration	50	
Children's Bureau	115	
St. Elizabeth's Hospital		
Veterans Administration		2,520
Tennessee Valley Authority		260
Department of Commerce		50
All others		100
Extramural expenditures		10,000

It is noteworthy that this government aid to extramural medical research is highly concentrated in a small number of institutions. More than one quarter of the five hundred and forty research projects supported by federal agencies in 1947 were located in seven medical schools. Nearly 40 per cent of all National Institute of Health grants in that year were located in ten medical schools, and 43 per cent of all medical research contracts sponsored by the Office of Naval Research were located in eight medical schools, four of which were among the ten schools heading the National Institute of Health list of grants. In noting this concentration of federal aid in a few schools, Mr. Steelman is not approving it. But it is implicit in his report that when one is spending the taxpayer's money and wants to get a job done, a conscientious and wise administrator will put his contracts with persons or institutions who appear to be best qualified to do the job. Any other action would be malfeasance. However, the problem remains of how to foster research, to entice personnel and to supply equipment to institutions where research is now not well developed, for no one entertains the idea that research ability is conditioned by geography. The National Institute of Health, the National Advisory Health Council and the Office of Naval Research are all aware of this requirement, and are trying within the provisions of existing law to make funds available for the development of research in less favored institutions. This would certainly be one of the important tasks of a National Science Foundation. But those familiar with Congress, with the Bureau of Budget and with the psychology of taxpayers will recognize the difficulties in this task.

Our present expenditures for research in all fields are of course many times what they were before the war. In 1930 our total national expenditure for research and development was $166,000,000. This figure has risen to an average of $600,000,000 during the years 1941 to 1945, the big increment after 1938 being related to the war, as is shown by the fact that the expenditures of the government rose from $23,000,000 in 1930 to $500,000,000 in the years 1941 to 1945. Meanwhile the expenditures of the universities have actually decreased, and for the interval from 1941 to 1945 have averaged substantially less than one half of the level obtaining in the previous decade. The universities spent 12 per cent of the national research budget in 1930, and only 2 per cent from 1941 to 1945. As government spending has increased under the unavoidable impetus of war, the universities have been relegated to a financially minor and dependent position. What will happen in the future? The problem is a complex one, and no prognostication can be ventured now.

TABLE 7.—*National Research Budget (in Millions)*

Year	Total	Federal Government	Industry	Universities	Other
1930	$166	$23	$116	$20*	$7
1932	191	39	120	25	7
1934	172	21	124	19	8
1936	218	53	132	25	8
1938	264	48	177	28	11
1940	345	67	234	41	13
1941-1945 avg.	600	500	80	10†	10
1957	2,200	(1,200)		250	

* Twelve per cent of total.
† Two per cent of total

Mr. Steelman emphasized that the rapid expansion of research within numerous federal agencies makes better coordination of this research imperative. He listed three requirements: 1. An over-all picture of research and development among various federal agencies must be available. 2. A central point must be provided where the maximum interchange of information can be effected with respect to programs and administrative technics in these agencies. 3. There must be a single office close to the President at which the most significant problems created in the research and development program of the nation as a whole can be brought into top policy discussions.

Setting up an organization to accomplish these ends is not a simple task. Steelman said that the possible creation of a Department of Science was considered but that after consultation with scientists and administrators this was rejected.

Instead, he recommended that there be created an Interdepartmental Committee for Scientific Research, which was to include the Directors of the Geologic Survey, the Agricultural Research Administration, the Bureau of Standards, the National Advisory Committee on Aeronautics, the National Institute of Health and the Research Branch of the Atomic Energy Commission and appropriate representatives from the National Military Establishment (Army, Navy and Air Force), with possibly a representative from the Department of State and the Civil Service Commission, and the Director of the National Science Foundation if and when this comes into existence. (There are, however, eight or nine government agencies other than those named which are interested in research. For example, the Veterans Administration cannot be ignored.) Through this Interdepartmental Committee the scientific work of the federal agencies could be brought into balance and improved.

Shortly after this recommendation, such an interdepartmental Committee was, in fact, created by Presidential directive (December 1947), and it is now operating.

To return to university expenditures, the Steelman Report recommends that by 1957 some $250,000,000 should be spent through the National Science Foundation for basic research in all fields in universities and colleges. This figure does not include undergraduate scholarships and graduate fellowships, which Steelman thought should be incorporated into a broad program of financial aid to higher education of all types. The National Science Foundation should, he thought, be an inline government agency headed by a director who is appointed by the President and who is to be assisted by a part time advisory board of scientists and educators. Half of this advisory board should be drawn from existing federal agencies and half from the universities. The Foundation would thus be closely analogous to certain existing agencies, which use the services of nongovernmental scientists in an advisory capacity. Federal aid to medical research should be administered by a subcommittee composed of government and nongovernment scientists which, as part of the National Science Foundation, should function within the framework of the Interdepartmental Committee.

Expenditures for medical research alone expended through all channels, which totaled $110,000,000 in 1947, should, according to Mr. Steelman, be at least tripled by 1957; i. e., increased to a total of $300,000,000 per year. He gave no estimate of the amount which might go to the medical schools.

REPORT OF PRESIDENT'S COMMISSION ON HIGHER EDUCATION

Supplementing these data from the Steelman Report are the extremely valuable data recently presented (December 1947) by the President's Commission on Higher Education, working under Mr George F. Zook, Chairman of the American Council on Education This commission, in its report entitled "Higher Education for American Democracy," recommended that $150,000,000 per year be made available for scholarships and fellowships in all fields of higher education.

This highly interesting report estimates that one half of the population has the mental ability to complete fourteen years of schooling with a curriculum of general and vocational studies which should lead to gainful employment or further training at an advanced level, and that one third of the population has the mental ability to complete an advanced liberal or professional education. These figures far exceed the actual school enrolment at the present time. Only one tenth of the population in the age group of 20 to 24 years is attending school, presumably (and this is only implicit in the Commission's report) because of inadequate finances.

The American people, according to the Commission, should set as an ultimate goal an educational system in which at no level—high school, college, graduate or professional school—will a qualified person in any part of the country encounter an insuperable economic barrier to the attainment of the kind of education suited to his aptitudes and interests. Not only should high school education be improved and provided for all normal youth, but education through a two year junior college should be made available to all in the same way that high school education is now available, and financial assistance should be made available from the tenth grade through the two year junior college to competent students who would not otherwise be able to continue their education. Tuition should be lowered in publicly controlled colleges, and deserving students who require aid should receive it through four years of college and *through professional training.*

The Commission recommended, as does the Steelman Report, that financial assistance to undergraduate and graduate students of science should be administered not through the National Science Foundation but through a federal agency responsible for a broad program of scholarships and fellowships directed toward all forms of education, leaving it to the recipients to choose the areas in which they will work and the institutions they will attend.

Specifically in respect to medicine, the Zook Commission predicted that by 1960 there will be an acute shortage of doctors. Quoting the Federal Security Agency, it asserted that the deficit will be at least 26,000 in 1960; if actual and urgent needs for better medical service are met, the shortage will be 56,000 doctors. To produce 56,000 doctors between now and 1960 will require that the annual output be doubled. (These remarks are parenthetical, and I return to the subject of federal aid to research.)

For perspective, I have calculated the total expenditures for educational purposes in 1939 of one hundred and fifty-nine universities and colleges, choosing all institutions which it seemed to me would conceivably participate in scientific training and research. The sum amounted to slightly over $300,000,000. The government's contribution of $250,000,000 for research in universities plus some undetermined figure for scholarships and fellowships would represent then nearly one half of the total educational budget in relevant schools.

Against this background, you can doubtless see why the issue of who should control a National Science Foundation has been of paramount importance, both to Washington and to scientists. The administration wants a Presidentially appointed director and a conventional inline government agency, while the majority of scientists want a nongovernmental board. The issue is perhaps one of the most important ever to be faced by science, or by the universities. (I have reported that Senator Smith and Mr. Wolverton are optimistic about reaching a suitable compromise in the next few weeks, but what that compromise will be cannot be said at this time.)

DANGERS STILL THREATENING ESTABLISHMENT OF FOUNDATION

As matters stand, there are still some technical dangers which threaten the establishment of a National Science Foundation. The new Interdepartmental Committee is now responsible for the expenditure of $500,000,000 of the $625,000,000 of government money. Assuming that the Interdepartmental Committee is not brought under the control of or made a part of the National Science Foundation, the latter may seem to Congress a relatively unimportant affair, and Congress may decide to put more money into the universities through existing government agencies rather than to create a new one. Or, with a large fraction of nondefense government money being spent by the Federal Security Agency, Congress may decide to increase the appropriation to that agency and let it take over all federal aid, other than defense, to the universities for all fields of science.

The aforementioned estimates of proposed federal aid to science and education may excite in you both happy anticipation and nervous alarm. I think one will do well not to take the figures too seriously. It seems doubtful that an economy-minded 80th Congress would appropriate more than a fraction of the sums mentioned. You will recall that against the $250,000,000 mentioned by Mr. Steelman as needed for university research of all kinds, and the $150,000,000 mentioned by Mr. Zook as needed for higher education of all kinds, the President modestly asked for $5,000,000 for a potential National Science Foundation for the coming fiscal year. This is only 1 per cent of the sums mentioned. We are at the moment in a phase when the national income is large, and money, to use the vulgar expression, is easy. We are enjoying the dubious blessings of a paternalistic federal government which is hopeful of solving most of our ills by legislative action and financial aid. But nothing in what I can glean from the crystal ball of the economists confirms me in the hope that our economic system is permanently stabilized beyond the danger of misadventure, that money will always be easy, that a paternalistic Congress will always sit in Washington, that we can always think in terms of a federal budget of $40,000,000,000, or that some day we may not have to wash test tubes ourselves, again.

It is frequently said that scientists are poor businessmen, owing to the fact that they live in ivory towers and breathe the rarefied air of intellectual abstraction. This may be true of physicists and chemists, for whom I cannot speak, but I challenge any Congressman, government official or businessman to make a dollar go farther than the average medical educator or medical researcher who has a genius for turning dollars into rubber, a genius which remains unrecognized by the Bureau of the Budget and other financial wizards.

You will recall that at the outbreak of the war the total annual budget of our 77 medical schools amounted to $26,000,000, only one quarter of what Mr. Steelman estimates is now spent on medical research and less than one tenth of what he recommends that we should spend. What proportion of our total budget we actually spent on research cannot be determined by any financial wizard for reasons that are clear to you all, but I would guess that it was not much in excess of one fifth, or about $5,000,000 per year, only one sixtieth of Mr. Steelman's optimal figure. Our annual expenditures for medical research have probably never exceeded this figure, and it was on this sum that American medicine forged to world leadership between 1900 and 1940.

When aiding Dr. Bush in the preparation of his report, "Science—the Endless Frontier," his Medical Committee made as thorough a study of the problem as was feasible in the few months available to them; and, partly on the basis of inquiries directed to all the deans of the medical colleges, as to how much money they could wisely use, the committee arrived at the recommendation that government aid to medical research, including fellowships, should take the form of $5,000,000 the first year, increasing over a period of five years to $15,000,000. I think that it was Bernard Shaw who said that you can never get the chill of poverty out of your bones. Clearly Dr. Bush's Medical Committee did not and do not yet know what $300,000,000 looks like.

In looking to the future, I look first to the past. Medical science owes its existence to the need to care for the sick and to the need to train new doctors to care for the sick. The care of the sick and the training of physicians is the black soil from which our medical science and the economic security of our medical scientists have come. Research has always been something of a dividend both for us and for society, one of the fruits of our service. This will possibly not always be true. I think it certain that in the near future we shall have federal aid in some form or other for medical research and education. But I foresee what seems to me to be a real danger. You can all recall the thirties when doctors of science were driving taxis in Germany, and you may have heard of the experienced restaurateur in New York who hung a sign in his window reading: "Dishwasher wanted. Must be Ph.D."

Except for temporary training fellowships, I tell my men that they must either take care of the sick or teach others how to do so. I assure them that about half of their time will be available for research, as an obligation to science and a dividend from society. So far, they seem to have liked this disposition of their lives, and their time has certainly been productively spent. They are poor, yes, but like Antaeus, the wrestler whose feet must remain implanted on the earth lest he lose his strength, they know their strength and whence it comes, and feel secure. I am not sure that by and large they could feel so secure, or could be as productive scientifically, if they did otherwise. But perhaps I am something of a pessimist, too much inclined to look down the horse's throat with a bronchoscope. You will doubtless discount this chronic ailment on my part in making your own assessments of the future.

Addendum: On March 25, 1948, a National Science Foundation Bill was introduced in the Senate (S. 2385)by Senator H. Alexander Smith for himself and Senators Cordon, Revercomb, Saltonstall, Thomas of Utah, Kilgore, Magnuson and Fulbright. An identical bill has been introduced in the House of Representatives, H. R. 6007, by Representative Charles A. Wolverton. The bill provides for a twenty-four member foundation, an Executive Committee of nine members and a director who is to be "appointed by the President, by and with the advice of the Senate, after receiving recommendations from the Foundation." The division of National Defense is eliminated, presumably because the Research and Development Board of the National Defense Establishment will supervise all fundamental military research. This makes the National Science Foundation a purely civilian organization. S. 2385 contains no provisions for the establishment of an Interdepartmental Committee on Science, presumably because such a committee has already been established by executive order. Apart from these changes, S. 2385 closely follows S. 526 introduced into the Eightieth Congress, First Session, and carries out the recommendations made by the various scientific groups who are interested in a National Science Foundation.

Clinical Notes, Suggestions and New Instruments

PENICILLIN IN TREATMENT OF WOUNDS INFLICTED BY A LION

ALEXANDER HERSHMAN KEMP, M.D.
Angola, Africa

For some years medical literature has been replete with reports of the use of penicillin for various types of infection, but so far as I know there has been no report of its use following a mauling of a person by a carnivorous animal. Hence the present report.

On the morning of Aug. 20, 1947 a man who had been mauled by a lion was brought to our mission hospital. The hospital is situated in West Central Africa, 9 degrees south of the equator, 300 miles inland from the west coast. There are lions, leopards, water buffaloes and other game in this region, and occasional victims of these animals are brought to our hospital for treatment. The staff consists of one American-trained doctor and an American nurse trained here, a typical "bush hospital."

Our present patient was a mulatto aged 43 years, robust of physique and a professional hunter by trade. He was heavily bandaged about the head, left arm and shoulder, and in a state of collapse. When he was able to talk he stated that about 8:30 on the previous morning he had been hunting about 160 kilometers (100 miles) distant from the hospital and about 20 kilometers (12 miles) from an automobile road. He had shot twice at a lion, hitting it with each shot. He claimed that he had used all precaution in approaching the spot where he had seen the lion drop, but he could not explain how the lion had made its surprise attack or whether it had used it teeth or claws or both in the attack. His companions came to his rescue, improvised a hammock and carried him to the automobile road, where a truck was secured to carry him to the nearest plantation, 25 kilometers distant, where he was given first aid. Another truck was then secured to take him 65 kilometers to a town, where a nurse redressed his wounds and gave him an injection of tetanus antitoxin. He was then brought to our hospital, 70 kilometers farther on, where he had been treated two months before for another condition.

The patient was in a state of shock peculiar to victims of attacks by wild animals, which was out of all proportion to what would be expected from similar wounds inflicted by machinery or in an automobile accident. Apparently he had been wounded only by the teeth of the lion, as all of the wounds were puncture wounds, not one being of a torn nature. When a leopard or lion uses its claws the wounds are like those made by a sharp razor, deep and cleancut. One tooth had cut downward through the left eyebrow and the edge of the upper lid. There were eleven wounds on the left arm, a similar number on the left side of the chest, three on the forearm and several on the shoulder. Apparently the animal had sprung on the victim and clamped his jaws several times without tearing the flesh, as sometimes happens. There had been considerable loss of blood, though the great prostration was probably not from this cause. The wounds were again dressed, this time with 1 per cent phenol solution, which is routine with us and has given satisfactory results with ordinary wounds such as those received in our carpentry shop. We applied penicillin ointment and gave the patient 5 Gm. of sulfathiozole by mouth in three doses and an injection of neoarsphenamine, 0.75 Gm., which is also routine with us, and morphine.

Our previous experience in treating wounds inflicted by wild animals has been in harmony with that cited by Castellani and Chalmers in their "Manual of Tropical Medicine."[1] Regardless of how thoroughly such wounds are debrided and cleansed, infection always follows, as the teeth and claws of such animals always are contaminated with various types of bacteria including the saprophytic. Cellulitis almost always and gangrene frequently follows because of this infection. I have never known a bite from a wild animal to heal by first intention, and usually a considerable period of time elapses before such wounds close.

Castellani and Chalmers recommended that all puncture wounds made by wild animals be opened widely for drainage, provided the condition of the patient allows this. The condition of our patient did not justify this. By the fourth day all of the wounds were discharging profusely, and the left hand was extremely edematous. We had been dressing the wounds daily and giving 3 Gm. of sulfathiozole daily. We then gave an injection of penicillin in oil and beeswax, 300,000 units, repeating this daily until a total of 1,500,000 units had been given. On the sixth day after the accident I gave another injection of neoarsphenamine, Gm. 60. The profuse discharge gradually lessened, and by September 15 had ceased.

About the fourth day of hospitalization a severe cough developed which prevented sleep day or night. The lungs showed no pathologic changes, which led me to believe that the cough was caused by the toxins of the infection. Four weeks after the accident the patient was discharged in good condition.

Judging by previous experience with wounds inflicted by wild animals, this patient would have had slight chance of recovery within six months of the accident, and it is highly probable that there would have been a fatal outcome. It was the universal opinion of our natives, and they have had much experience with such accidents, that the prognosis for this man was hopeless. I attribute his recovery, rapid and complete, to the penicillin.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

Austin Smith, M.D., *Secretary.*

FIBRIN FOAM.—A sterile, dry preparation of fibrin prepared from fraction I of citrated normal human plasma as fractionated by the method of Cohn (*J. Am. Chem. Soc.* **68**:459, 1946). It complies with the requirements of the National Institute of Health of the United States Public Health Service.

Actions and Uses.—Fibrin foam (human) acts as a mechanical coagulant and in combination with thrombin gives a chemical as well as a mechanical matrix for coagulation. It has been used in surgery of the brain, liver, kidneys and other organs where ordinary methods of hemostasis are ineffective or inadvisable.

Dosage.—Apply directly to oozing surface.

Tests and Standards.—

Fibrin foam (human) consists of small, yellowish, rectangular, fragile, spongelike pieces which become compressible and resilient when completely wetted with water. The loss in weight on drying a specimen of fibrin foam over phosphorus pentoxide in vacuo is not more than 5 per cent. The residue on ignition shall not exceed 8 per cent.

Peptic digestion of a 50 mg. piece of fibrin foam in 100 cc. of a 1 per cent solution of pepsin N. F. in tenth normal hydrochloric acid at 37 C. shall require less than thirty minutes.

Cutter Laboratories, Berkeley, Calif.

Fibrin Foam and Thrombin (Human): Packages containing a 250 mg. (6.25 to 12.55 cc.) jar of fibrin foam, a vial of thrombin (human) containing not less than 200 units and a 20 cc. vial of isotonic sodium chloride solution.

The thrombin supplied meets the requirements of the National Institute of Health of the United States Public Health Service and is derived from human plasma.

Licensed by Research Corporation under U.S. Patent 2,389,074.

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1. Castellani, A., and Chalmers, A. J.: Manual of Tropical Medicine, ed. 3, New York, William Wood & Company, 1920.

APPROVED INTERNSHIPS AND RESIDENCIES IN THE UNITED STATES

ANNUAL REPORT ON INTERNSHIPS AND RESIDENCIES BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

F. H. Arestad, M.D., E. K. Reid, M.D., and E. H. Leveroos, M.D.

The approved internship and residency lists previously published in August of each year are now appearing for the first time in a special Internship and Residency Number of THE JOURNAL. The transfer of these lists from the August Educational Number of THE JOURNAL to the earlier publication date has been made so that information on educational services may be available at a more convenient time to those who, later in the year, will be seeking internship and residency appointments for 1949.

The present internship list contains the names of all hospitals approved by the Council for intern training as of April 1, 1948. These hospitals are listed alphabetically by city and state and show also the type of ownership or control, bed capacity, number of patients admitted, percentage of service cases, percentage of private patients assigned to interns, type of internships offered, length of training, number of internships available, affiliated assignments, outpatient service, necropsy percentage, monthly stipend and date of internship assignment. In the present list for the first time indication appears of internship hospitals affiliated with individual medical schools as (1) a major unit in the school's teaching program or (2) a limited assignment for undergraduate clinical clerkships. Various factors relating to hospital internships are described in subsequent sections of the report, which includes a special study on the supply and distribution of interns.

The residency list includes all hospitals approved by the American Medical Association for residency training as of April 1, 1948. The hospitals are listed in accordance with individual specialties and show in connection with each training program the chief of service, the volume of teaching material available, number of residencies offered, length of training, date of residency assignment and monthly stipend. In the fields in which specialty Boards have been established, it is indicated in the corresponding sections of the list that the residencies approved by the Council are likewise acceptable to the respective Boards.

Grateful acknowledgment is made to the individual internship and residency hospitals, the medical schools, the specialty Boards, the Army, Navy, United States Public Health Service, Veterans Administration, the hospital administrators, educational directors, staff physicians and other personnel whose generous cooperation has made possible the preparation and publication of these lists.

Number of Internships

As of April 1, 1948, 798 hospitals in the United States were approved for intern training, as well as 9 outside the country. Those listed include 41 under federal control, 120 under governmental control other than federal, 16 proprietary institutions, 295 church sponsored, and 335 non-profit associations. They offer a total of 9,118 internships including 16 in the Canal Zone, 18 in Puerto Rico and 26 in Hawaii. These are not all available annually, however, since 979 of the total number are for periods in excess of twelve months. Since the publication of the Educational Number, August 16, 1947, the Council on Medical Education and Hospitals has approved 17 new hospitals.

In the federally controlled group, the U.S. Army now offers 108 internships, the U.S. Navy 117, the U.S. Public Health Service 115 and the Federal Security Agency 30.

In the publication of the list of hospitals approved for intern training, teaching hospitals have been identified this year for the first time. For purposes of this list, a hospital has been designated as a teaching hospital if its inpatient services are used by junior or senior medical students for clinical clerkships. A reference note indicates the medical school or schools with which the hospital is affiliated.

Internship Vacancies

For many years the number of approved internships has been greater than the number of physicians graduated annually. Prior to the war, however, relatively few approved internships were not filled. During the war certain dislocations in the supply and distribution of interns were inevitable. With the end of the war, however, a full return to the prewar pattern of the supply and distribution of interns did not occur, and considerable attention has been centered during the past two years on the fact that a number of approved internships have remained vacant. Because of the general interest in this problem, statistics with respect to vacant or unfilled internships for the current year, and for 1944 and 1939 have been analyzed. The important findings of this analysis are summarized below under several headings, including the number of internships vacant; the number of hospitals having internship vacancies, and the number of admissions per intern.

Table. 1.--*Approved Hospitals, Internships and Medical School Graduates 1938-1948*

Year*	Number of Hospitals	Number of Internships	Number of Graduates
1938	729	7,354	5,194
1939	734	7,833	5,089
1940	732	7,998	5,097
1941	735	8,182	5,275
1942	740	8,353	5,163
1943	760	8,180	5,233
1944**	766	5,602	10,303***
1945	785	8,429	5,136 (to June 30th)
1946	798	8,584	5,826 (to May 31st)
1947	764	8,539	6,389 (to June 30th)
1948	807	9,118	5,716 (estimated)

*Year of publication.
**Quota year
***Includes 2 classes

(U.S. Army, U.S. Navy hospitals and those outside the United States not included in 1938-1947 figures.)

Number and Distribution of Internship Vacancies

The gradual increase in the number of approved internships during the past ten years is shown in table 1. The number of graduates has increased by 12 per cent.

The distribution by states of the number of internships and interns on duty is shown in table 2[1] New Hampshire, offering a relatively small number of internships, reported no vacancies. Of those states offering 100 or more internships, Minnesota showed the lowest percentage of vacancy, 6.9 percent, with California and Georgia next, both indicating vacancies of 10.5 percent. Conversely, Maine showed the highest percentage of vacancies, 79.1 percent, and Montana the next highest, 71.4 percent; these two states together offered a total of 31 internships. Of those states listing 100 or more internships available, Indiana indicated the greatest percentage of vacancy, 32 percent; New Jersey and Ohio followed with 28.4 percent and 28.2 percent, respectively.

The annual demand for interns has been increased not only by the establishment of additional internships but also by the fact that a much greater proportion of the internships are now offered for a one year period only. In 1939 there were 1,738 internships of over one year's duration while in 1948 the number of such internships is only 979. The decline in the number of the longer type internships is attributable in part to the fact that more physicians enter residency training after the first year of internship, with a consequent lessening of demand for the two year plans, and to the fact that some hospitals have been unable as yet to convert from their shorter wartime programs. Further analysis of the data listed in table 2 reveals that the teaching group offered 46.8 percent of the total number of internships while the non-teaching group accounted for 53.2 percent. Teaching hospitals reported 8.6 percent of their positions unfilled, while 32.2 percent of the positions in the non-teaching group were vacant. To recapitulate, there were 8,609 internships offered in the hospitals included in this group, 4,034 in the teaching institutions and 4,575 in the other; 6,902, or 80 percent of these were filled, with 3,709 interns on duty in the teaching hospitals and 3,193 in the non-teaching group. Vacancies number 1,781 with 348 in the former hospitals and 1,433 in the latter; the over-all percentage of vacancies was 20 percent.

Table 2.--*Internships Available and Interns Assigned by States (1947-1948).**

State	Number of Internships*	Number of Vacancies	Number of Interns Assigned	Percentage Vacancy
Alabama	62	15	47	24.2
Arizona	15	4	12	26.6
Arkansas	28	14	14	50.0
California	558	56	503	10.5
Colorado	72	6	69	8.3
Connecticut	198	33	165	16.6
Delaware	33	3	30	9.9
Dist. of Col.	133	24	109	18.0
Florida	57	16	41	28.0
Georgia	114	12	104	10.5
Illinois	691	178	522	25.8
Indiana	184	59	125	32.0
Iowa	65	21	44	32.3
Kansas	53	30	23	56.6
Kentucky	80	21	59	26.2
Louisiana	213	35	178	16.4
Maine	24	19	5	79.1
Maryland	268	51	230	19.0
Massachusetts	416	79	347	18.9
Michigan	374	68	312	18.7
Minnesota	175	10	168	6.9
Missouri	329	83	246	25.2
Montana	7	5	2	71.4
Nebraska	55	12	43	21.8
New Hampshire	9		9	
New Jersey	380	108	272	28.4
New York	1538	219	1324	14.2
North Carolina	126	13	113	10.3
North Dakota	8	5	3	62.5
Ohio	467	132	343	28.2
Oklahoma	53	16	38	30.1
Oregon	69	9	60	13.0
Pennsylvania	799	214	585	26.7
Rhode Island	43	7	36	16.2
South Carolina	43	8	35	18.6
Tennessee	148	22	135	14.9
Texas	220	52	168	23.6
Utah	50	17	33	36.0
Vermont	10	2	8	20.0
Virginia	116	27	89	23.2
Washington	119	23	96	19.3
West Virginia	41	17	24	41.4
Wisconsin	166	33	133	19.8
	8609	1781	6902**	20.5

*Includes 748 of 807 hospitals approved; excludes Federal hospitals, those outside the United States and 22 others.
**27 hospitals had 74 interns assigned in excess of number offered.

Number of Hospitals Affected by Internship Vacancies

Charts 1 and 2 present the problem of internship vacancies from the standpoint of the number of hospitals involved and the degree to which they are affected. Hospitals presently classified as teaching are similarly grouped in the 1939 and 1944 data. In 1939, 78.5 percent of 704 approved hospitals had full complements of interns with only 1.7 percent of the teaching hospitals and 6.0 percent of the non-teaching hospitals having less than half of their internships filled. By 1944, the number of hospitals having all assignments filled had decreased to 62.4 percent. Hospitals with vacancies in excess of one half the number available had increased to 7.8 percent of those classified as teaching and to 20.9 percent of the others. Currently, only 33 percent of the number of hospitals with intern programs have complete intern staffs; 9.7 percent of the teaching hospitals and 30.2 percent of the nonteaching group have less than half their required number of interns. A further breakdown of these data indicates that, in 1948, when one third of all hospitals in the survey group reported no vacancies, an additional 22 percent reported that at least three-fourths of their positions were filled. Twenty percent had between one half and three fourths of their full quota, and 25 percent had less than half their internships filled, including 87 hospitals reporting no interns; and of this group, 57 had one or more residents assigned. Of the entire group of hospitals surveyed, therefore, only 30 hospitals were without interns or residents during the past year. It is evident that a direct correlation exists between the size of a hospital and the proportion of intern vacancies. Data presented numerically in table 3 and graphically in chart 2 demonstrate the increased concentration of interns in larger hospitals. In 1939 when intern vacancies were relatively few, a fairly equable distribution was evident among hospitals of various sizes; any inequality was confined to those of 150 beds or less and even this was slight. At the present time, however, with the vacancy problem of greater proportions, the smaller hospitals have been considerably more affected. In the 450 bed and over category, 54.8 percent reported they had their full intern complement while less than 2 percent reported vacancies in excess of one half those offered. Hospitals of 150 beds and under, however, had only 29.3 percent reporting no vacancies, with 37.5 percent showing vacancies of more than one-half those available. The inverse proportion between size of hospital (i.e., bed capacity) and internship vacancies is fairly constant for all four groups.

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[1] Data for 1947-1948 presented in the text, charts 1 and 2 and tables 2 to 5 include 185 teaching and 563 non-teaching hospitals furnishing sufficient information for statistical analysis.

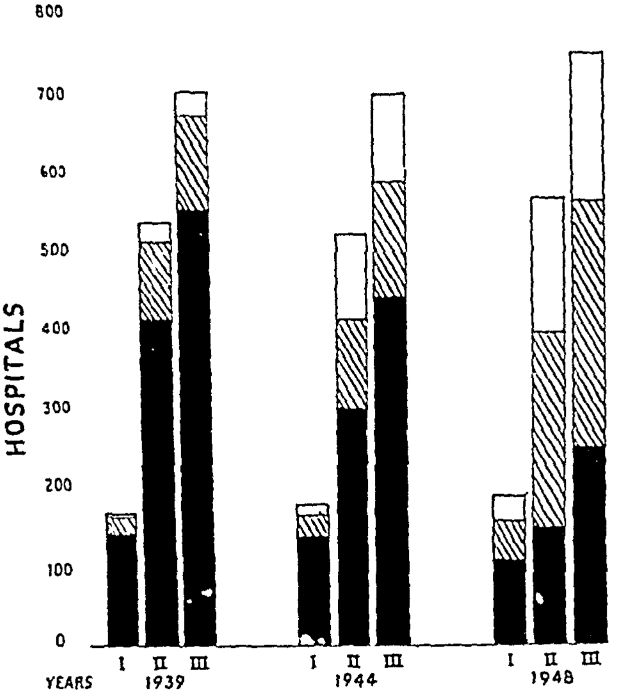

Chart 1.—Number of approved hospitals and percentage of vacancies, 1939-1944-1948: I, teaching hospital; II, nonteaching hospital; III, combined. The white portion of the column indicates 51 to 100 per cent vacancies; the shaded portion, 1 to 50 per cent vacancies, and the black portion, no vacancies.

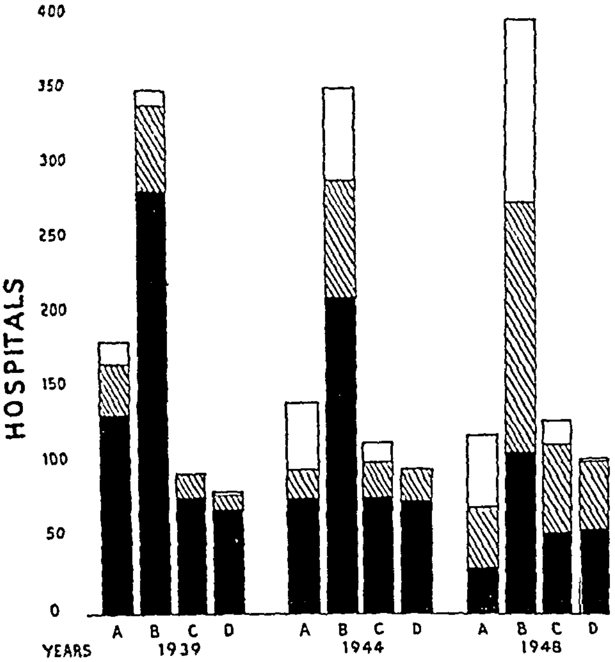

Chart 2.—Internship vacancies correlated with bed capacity, 1939-1944-1948: A, 150 beds or less; B, 151 to 300 beds; C, 301 to 450 beds, and D, 451 beds and over. The white portion of the column indicates 51 to 100 per cent vacancies; the shaded portion; 1 to 50 per cent vacancies, and the black portion, no vacancies.

To summarize, from the data presented in charts 1 and 2 it is apparent that under the existing conditions in which the number of internships in hospitals approved for training exceeds the number of interns available, a fairly broad distribution of interns obtains. However, it can be seen that an increasingly higher proportion of the interns available are accepting appointments in the larger hospitals and those affiliated with medical schools.

Ratio of Interns on Duty to Annual Admissions

A further pertinent consideration in evaluating intern vacancies is that of hospital admissions. It is apparent that with an increase in the number of annual admissions, an approved hospital will require additional interns.

Data covering hospital admissions for the three years under consideration are contained in table 4. Average admissions per hospital for both groups increased by 35 per cent from 1939 to 1948, with an increase in the teaching group of 28 per cent and an increase of 38 per cent for the non-teaching hospitals. In

Table 3.--*Internship Vacancies Correlated with Hospital Bed Capacity*

	1939				1944				1948			
		Vacancies				Vacancies				Vacancies		
Number of Beds	Number of Hospitals	None	50% or less	51-100%	Number of Hospitals	None	50% or less	51-100%	Number of Hospitals	None	50% or less	51-100%
150-less	182	127(69.8%)	39(21.4%)	16(8.8%)	140	75(53.5%)	19(13.5%)	46(33.0%)	120	31(29.2%)	40(33.3%)	49(37.5%)
151-300	350	281(80.3%)	58(16.4%)	11(3.3%)	351	210(58.4%)	77(21.9%)	64(19.7%)	395	108(27.3%)	166(42.0%)	121(30.7%)
301-450	92	76(82.6%)	16(17.4%)		112	75(66.9%)	24(21.4%)	13(11.7%)	129	53(41.0%)	60(46.5%)	16(12.5%)
451-over	80	69(86.3%)	10(12.5%)	1(1.2%)	95	74(77.7%)	21(22.3%)		104	57(54.8%)	45(43.3%)	2(1.9%)
	704	553	123	28	698	334	141	123	748	249	411	188

Table 4.--*Number of Interns in Relation to Annual Admissions*

	1939			1944			1948		
	Teaching Hospitals*	Non-Teaching Hospitals	Combined	Teaching Hospitals*	Non-Teaching Hospitals	Combined	Teaching Hospitals	Non-Teaching Hospitals*	Combined
Number of Admissions (thousands	1610	2872	4482	1801	3399	5200	2301	4963	6364
Number of Interns on Duty	3220	3860	7080	2807	2290	5097	3709	3193	6902
Number of Admissions per Intern	499.9	744.1	633.1	641.6	1484.2	1020.2	620.3	1272.4	922.0
Average Admissions per Hospital	9698.1	5241.7	6305.8	10118.6	6531.6	7451.1	12440.1	7216.9	8507.5

*Hospitals classified as teaching in 1948 are similarly grouped in 1939 and 1944.

addition to the increased number of admissions per hospital, there was an appreciable drop in the number of interns on duty in the non-teaching hospitals. As a consequence, the number of admissions per intern, in this group, has increased by approximately 70 per cent. In the teaching hospitals, it has increased by about 25 per cent during the same period. In 1939 the number of admissions per intern in the non-teaching hospitals exceeded that for the teaching group by 19 per cent, while in 1948, this had increased to 105 per cent. The apparent disproportion of interns in teaching hospitals, however, must be considered in the light of the duties involved and the number of patients with which the intern is directly concerned. In the smaller non-teaching hospitals many of the patients admitted are not available to the intern for instructional purposes. While many such hospitals list the majority of all private patients as available for intern training, the degree to which the intern is responsible for this type of patient varies markedly. Additional demands on the intern's time in a teaching hospital also affects the number of admissions for which he can assume responsibility.

In summary, it is apparent that many factors enter into the consideration of internship vacancies: the increased intern requirements of Army and Navy hospitals, the increased number of hospitals approved for intern training, the decrease in the number of 18 months' and 24 months' internships, the trend towards beginning residency training after one year of internship, and the apparent concentration of interns in hospitals of larger size as well as in teaching institutions.

The effect of the war on the pattern of the supply and distribution has not been entirely removed. In the last six months of 1947 approximately 3,000 men who had completed their first year of internship were called to active duty in the armed services and were not available for a second year of internship. Until more stabilization has been achieved, it will be difficult to evaluate the relative importance of the factors listed above in contributing to the problem of internship vacancies.

Table 5.--*Autopsy Percentage*

	20%-less	21-30	31-40	41-50	51-60	61-70	71-80	81%-over	Total
Teaching Hospitals	9	25	29	48	35	22	9	8	185
Non-teaching Hospitals	69	154	116	103	65	32	13	1	563

Autopsies

Autopsy percentages of hospitals included in the 1948 survey group are given in table 5. The majority of hospitals approved had little difficulty in meeting the minimum requirement of 15 percent. Of the teaching hospitals, 122 (66 percent) had rates of 40 percent or over; in the non-teaching group, 214 (38 percent) were able to maintain a rate of this level. Again, in the teaching group, less than 5 percent (9 hospitals) indicated rates of 20 percent or below; 12 percent (69 hospitals) of the non-teaching group were below 20 percent. There was some degree of correlation between vacancies and autopsy percentages, with hospitals having lower autopsy rates showing a greater percentage of vacancies; 45 (57 percent) of the non-teaching hospitals without interns had an autopsy rate of 30 percent or loser; 106 (74 percent) of the non-teaching group having no internship vacancies had autopsy rates in excess of 30 percent.

Stipend

Data concerning monthly stipends are available for 738 of the hospitals studied. Of this group, 60 teaching and 24 non-teaching hospitals (11 percent) paid no stipend; 98 teaching and 240 non-teaching (46 percent) paid $50.00 or less; an additional 265 (36 percent) offered amounts from $51.00 to $100.00 while 51 hospitals (7 percent) stipulated amounts in excess of $100.00.

Facilities for Residency Training

Hospital facilities for the training of resident physicians have increased tremendously in recent years. Compared with 1941, when 5,256 residencies were available, the present total of 15,172 as of April 1, 1948 represents an increase of nearly 200 per cent. These services include 12,402 approved residencies in nonfederal hospitals and 2,770 in the federal group, including 2,118 in hospitals operated by the Veterans Administration. The number of hospitals currently approved by the American Medical Association for residency training is 1,102. However, many institutions offer training in several fields and thus a total of 3,737 separate programs are represented in the list of Approved Residencies and Fellowships published in this issue of THE JOURNAL.

The list of approved residencies is divided into twenty-seven groups classified alphabetically according to field of training. The individual hospitals in each group are listed alphabetically by city and state and show also the chief of service, the volume of teaching material available, necropsy percentage. number of residencies offered. date of residency assignment, length of training and monthly stipend. In the sixteen fields in which specialty boards have been established, it is indicated in the corresponding sections of the list that the residencies approved by the Council are likewise acceptable to the respective Boards. This designation of Board acceptance is shown in relation to (1) anesthesiology, (2) dermatology and syphilology, (3) internal medicine, including allergy, cardiovascular disease, gastroenterology and pulmonary diseases, (4) neurologic surgery, (5) obstetrics and gynecology, (6) ophthalmology, (7) orthopedic surgery, (8) otolaryngology, (9) pathology, (10) pediatrics, (11) physical medicine, (12) plastic surgery, (13) psychiatry and neurology, (14) radiology, (15) surgery and (16) urology.

It should also be noted that the number of years of credit allotted by various specialty boards is indicated in the residency list by footnotes 1 to 3 included immediately after the name of the hospital. This information is furnished in the fields of dermatology and syphilology, neurology, obstetrics and gynecology, orthopedics, pathology, pediatrics, psychiatry, radiology and urology. It is anticipated that in the near future similar information will also be available in relation to other specialties.

While there is no certification in contagious diseases, as such, training credit for six months in approved residencies in this field may be granted by the American Boards of Internal Medicine and Pediatrics. Similarly, in malignant diseases some credit toward eligibility for the certification examinations may be granted by the American Boards of Surgery, Pathology and Radiology. The American Board of Surgery has indicated that two years of training credit may be allowed for work in an approved residency in one of the more specialized fields of surgery, such as neurologic surgery, plastic surgery or thoracic surgery. General residencies, which represent general hospital assignments of one or more years after the internship, do not, as a rule, carry credit toward certification by the specialty boards. A separate residency classification has recently been established in occupational medicine, and institutions desiring residency approval in this field should apply directly to the Council on Medical Education and Hospitals.

All of the specialty boards are cooperating with the Council on Medical Education and Hospitals in the evaluation of residencies in their respective fields. This program of cooperative study and appraisal of educational services was inaugurated in 1939 and has proved highly successful not only in the evaluation and approval of individual hospitals, but also in the development of uniform standards and the establishment of residency lists equally acceptable to the Council and the respective specialty boards.

Toward the end of the war large numbers of applications were submitted by hospitals seeking to meet the increased demand for residency training. In response to this need, the Council, in collaboration with the Advisory Board for Medical Specialties, instituted in 1946 a plan for the temporary approval of residencies so that new, well organized educational programs might be available to physician-veterans without undue delay.

Number Of Residencies Available

The number and distribution of approved residencies may be observed in the accompanying table. General surgery offers the greatest number of residencies, 2,977 in all, whereas internal medicine has 2,880 not counting 47 in allergy, 55 in cardiovascular disease, 3 in gastroenterology and 418 in pulmonary diseases. With reference to gastroenterology, it should be noted that only recently was a separate residency classification established in this field. Psychiatry can accommodate 1,618 applicants, obstetrics and gynecology 1,145, radiology 833, pathology 794, pediatrics 791, ophthalmology and otolaryngology 738, orthopedics 718, anesthesiology 487, pulmonary diseases 418 and urology 407. The degree of expansion in the various fields is readily apparent when the present totals are compared with the corresponding figures for 1941. Reference should also be made to the sections on Internships and Residencies published in THE JOURNAL, April 12, 1947, pages 1078-1082, and August 16, 1947, pages 1318-1320.

Table 6.--*Approved Residencies and Fellowships - 1948*

Specialty	Number of Hospitals	Residencies Offered	Residencies in 1941
Allergy	11	47	...
Anesthesiology	152	487	121
Cardiovascular Disease	17	55	6
Contagious Diseases	19	76	48
Dermatology and Syphilology	75	219	78
Gastroenterology	2	3	...
General Residency	90	269	183
Internal Medicine	458	2,880	803
Malignant Diseases	22	107	71
Neurologic Surgery	57	138	36
Neurology	62	200	73
Obstetrics and Gynecology	336	1,145	442
Occupational Medicine		...	...
Ophthalmology and Otolaryngology	165	738	441
Orthopedic Surgery	239	718	200
Pathology	328	794	332
Pediatrics	200	791	393
Physical Medicine	34	70	5
Plastic Surgery	18	47	8
Proctology	11	28	...
Psychiatry	227	1,618	424
Pulmonary Diseases	116	418	269
Radiology	336	833	250
Surgery	544	2,977	903
Thoracic Surgery	41	107	33
Urology	177	407	137
Totals	3,737*	15,172	5,256

* Number of residency programs in 1,102 hospitals approved for residency training.

Residencies in Federal Hospitals

Well organized educational programs for resident physicians have been developed by the Army, Navy, U.S. Public Health Service and the Veterans Administration. The Army, which can accommodate 334 residents in nine approved general hospitals, has at present 268 in training with 75 additional medical officers holding residency assignments in civilian hospitals. Fifteen Naval hospitals are approved for residency training. Twelve approved hospitals of the U.S. Public Health Service can accommodate 125 resident physicians. The Veterans Administration has facilities for 2,118 residents in seventy hospitals approved by the Council for residency training.

APPROVED INTERNSHIPS

Council on Medical Education and Hospitals of the American Medical Association

535 North Dearborn Street, Chicago 10

Revised to May 1, 1948

HOSPITALS, 807 INTERNSHIPS, 9,118

The following general hospitals, investigated and approved by the Council on Medical Education and Hospitals, are considered in position to furnish acceptable intern training in accordance with standards adopted by the American Medical Association. Three types of internships are approved by the Council—rotating, mixed and straight:

1. A rotating internship is defined as one which provides supervised experience in internal medicine, surgery, pediatrics, obstetrics and their related subspecialties, together with experience in laboratory and radiologic diagnosis.

2. A mixed internship is defined as one which provides supervised experience in two or more, but not in all, of the clinical divisions named.

3. A straight internship is defined as one which provides supervised experience in a single department, although it may include limited opportunity for work in a related subspecialty. Straight internships are now approved in internal medicine, surgery, pediatrics, obstetrics (with or without gynecology) and pathology.

Hospitals approved for internships that are used by medical schools for undergraduate clinical clerkships on inpatient services have been identified in the following lists by the symbols X and x. Hospitals have been identified with symbol X when a medical school has indicated that the hospital is a major unit in the school's teaching program. Hospitals have been identified with the symbol x when a medical school has indicated that the hospital is used to a limited extent in the school's teaching program. Certain internships in hospitals designated as teaching hospitals may not provide for assignments to teaching services. Other internships may provide for only a portion of the internship period being spent on teaching services. Prospective interns desiring specific information concerning internship assignments to teaching services in a hospital are advised to communicate with the dean of the medical school with which the hospital is affiliated. Medical school affiliations are indicated by footnotes 10 to 79 placed immediately after the symbol X or x. The list of medical schools appears on page 40.

The hospitals approved for intern training are likewise accredited for general residencies which represent general house staff assignments following the internship. The plus (+) sign indicates additional approval for residencies in specialties, as shown in the Council's list of Approved Residencies and Fellowships for Veteran and Civilian Physicians.

Name of Hospital	Location	Capacity	Total Patients Admitted	Type of Internship	Length of Service in Months	Internships	Affiliated Service	Outpatient Service	Autopsy Percentage	Service Commences
UNITED STATES ARMY										
[illegible] +	San Francisco, Calif.	2,442	15,298	R	12	24	No	None	96	JanJune
[illegible] + x16	Denver, Colo.	3,005	14,796	R	12	32	No	None	83	July
[illegible] + x18-19	Washington, D. C.	2,400	12,453	R	12	36	No	Req	83	July
[illegible] 12	Augusta, Ga.	2,600	8,403	R	12	..	No	Req	81	Varies
[illegible] +	Battle Creek, Mich.	3,861	9,335							
Brooke General Hospital +	San Antonio, Tex.	2,346	20,840	R	12	..	No	None	69	Varies
Madigan General Hospital +	Fort Lewis, Wash.	3,071	18,280							
Gorgas Hospital +	Ancon, Canal Zone	988	14,263	R	12	16	No	Req	65	JulyAug
UNITED STATES NAVY										
U.S. Naval Hospital +	Long Beach, Calif.	1,575	16,732	R	12	20	No	None	90	July
U.S. Naval Hospital	Mare Island, Calif.	800	8,258	R	12	7	No	Req	63	July
U.S. Naval Hospital +	Oakland, Calif.	1,618	17,320	R	12	3	No	Req	48	Varies
U.S. Naval Hospital +	San Diego, Calif.	1,500	22,238	R	12	24	No	Req	75	Varies
U.S. Naval Hospital +	Jacksonville, Fla.	550	6,727	R	12	..	No	Req	100	Varies
U.S. Naval Hospital +	Pensacola, Fla.	400	6,176	R	12	4	No	Req	68	Varies
U.S. Naval Hospital +	Great Lakes, Ill.	1,964	9,151	R	12	10	No	Req	94	July
U.S. Naval Hospital + x18	Bethesda, Md.	1,400	14,298	R	12	15	No	None	81	Varies
U.S. Naval Hospital +	Chelsea, Mass.	1,000	9,603	R	12	16	No	Req	93	Varies
U.S. Naval Hospital +	Brooklyn, N. Y.	700	6,033	R	12	..	No	None	53	Varies
U.S. Naval Hospital +	St. Albans, N. Y.	1,550	10,837	R	12	15	(220)	None	67	July
U.S. Naval Hospital +	Philadelphia, Penna.	1,272	21,897	R	12	15	No	Req	54	June
U.S. Naval Hospital +	Newport, R. I.	800	7,885	R	12	10	(221)	Req	74	Varies
U.S. Naval Hospital	Charleston, S. C.	450	6,881	R	12	8	No	Req	70	July
U.S. Naval Hospital	Memphis, Tenn.	1,467	5,255	R	..	..	(222)	None	30	Varies
U.S. Naval Hospital	Corpus Christi, Tex.	488	4,794	R	12	6	No	Req	60	June
U.S. Naval Hospital	Houston, Tex.	520	3,300	..	..	..	....	....	78	....
U.S. Naval Hospital +	Portsmouth, Va.	1,200	10,874	R	12	12	No	Req	81	June July
U.S. Naval Hospital	Bremerton, Wash.	630	5,497	R	12	12	No	Req	74	July
U.S. Naval Hospital	Aiea Heights, Hawaii	750	9,197	R	12	..	....	Req	100	....
UNITED STATES PUBLIC HEALTH SERVICE										
United States Marine Hospital +3	San Francisco, Calif.	567	5,630	R	12	12	(223)	Req	65	July
United States Marine Hospital +3	Chicago, Ill.	306	2,424	R	12	6	(224)	Req	86	Varies
United States Marine Hospital +3	New Orleans, La.	558	6,697	R	12	12	No	Req	77	July
United States Marine Hospital +3	Baltimore, Md.	500	7,963	R	12	12	(225)	Req	76	July
United States Marine Hospital +3	Boston, Mass.	361	4,000	M	12	9	No	Req	59	July
United States Marine Hospital +3	Detroit, Mich.	266	2,812	R	12	6	(226)	Req	47	July
United States Marine Hospital (Staten Island) +1-3	Stapleton, N. Y.	1,027	12,743	R	12	30	(227)	Req	57	July

Abbreviations and other references will be found on pages 40 and 41.

Name of Hospital	Location	Capacity	Total Patients Admitted	Type of Internship	Length of Service in Months	Internships [4]	Affiliated Service	Outpatient Service	Autopsy Percentage	Service Commences
UNITED STATES PUBLIC HEALTH SERVICE—Continued										
United States Marine Hospital +	Cleveland, Ohio	202	3,230	R	12	6	(228)	Req	43	July
United States Marine Hospital[3] x72	Galveston, Tex.	202	3,534	R	12	6	(229)	Req	59	July
United States Marine Hospital[3]	Norfolk, Va.	420	5,601	R	12	10	(230)	Req	68	July
United States Marine Hospital +[3]	Seattle, Wash.	400	5,598	R	12	6	No	Req	70	July
FEDERAL SECURITY AGENCY										
Freedmen's Hospital +[1-3] X20	Washington, D. C.	498	7,002	R	12	18	No	Req	46	July
St. Elizabeth's Hospital +[1-3] x18-19	Washington, D. C.	6,577	1,378	R	24	12	(118)	None	58	July

Name of Hospital	Location	Control	Capacity	Total Patients Admitted	% Service Cases	% Private Patients Assigned to Interns	Type of Internship	Length of Service in Months	Internships	Affiliated Service	Outpatient Service	Autopsy Percentage	Stipend per Month	Service Commences
ALABAMA														
[illegible]al +[1] X10	Birmingham	State	641	21,928	40	100	R	12	36	(101)	Req	37	$25	July
[illegible]	Birmingham	Church	218	7,486	95	100	R	12	8	No	Req	48	75	July
[illegible]y	Birmingham	Corp	167	5,613	20	100	R	12	2	No	Req	37	120	July
[illegible]e Tennessee Coal, Iron [illegible] +	Fairfield	NPAssn	299	8,117	...	100	R	12	12	No	Req	40	50	July
City Hospital +	Mobile	CyCo	332	8,064	...	...	R	12	4	No	Req	31	75	July
ARIZONA														
Good Samaritan Hospital[1]	Phoenix	Church	263	8,417	...	20	R	12	5	No	None	31	100	July
St. Joseph's Hospital +	Phoenix	Church	238	8,156	10	95	R	12	6	No	None	43	40	July
St. Monica's Hospital +	Phoenix	Church	251	6,383	61	10	R	12	4	No	None	40	75	July
ARKANSAS														
Baptist State Hospital +[1] x11	Little Rock	Church	311	10,174	4	100	R	12	10	No	None	20	75	July
St. Vincent Infirmary + x11	Little Rock	Church	260	9,389	15	100	R	12	6	No	None	19	50	July
University Hospital +[1] X11	Little Rock	State	230	4,145	100	...	R	12	12	(105)	Req	45	50	July
CALIFORNIA														
Herrick Memorial Hospital +[1]	Berkeley	NPAssn	240	7,183	3	98	R	12	6	No	Req	35	75	JulyOct
San Joaquin General Hospital +[1]	French Camp	County	603	12,740	100	...	R	12	8	No	Req	65	128	July
General Hospital of Fresno County +[1-3]	Fresno	County	573	8,592	100	...	R	12	12	No	Req	27	95	July
Glendale Sanitarium and Hospital +[1]	Glendale	Church	265	7,118	...	...	R	12	6	No	Req	34	130(a)	July
Loma Linda Sanitarium and Hospital +[1] x13	Loma Linda	Church	163	5,035	63	100	R	12	6	No	Req	60	104	July
Seaside Memorial Hospital +[1]	Long Beach	NPAssn	425	14,273	...	...	R	12	12	(106)	None	24	50	July
California Hospital +[1]	Los Angeles	Church	365	14,406	64	100	R	12	14	(107)	Req	49	50	July
Cedars of Lebanon Hospital +[1]	Los Angeles	NPAssn	360	10,892	11	100	M	12	10	No	Req	42	60	July
Childrens Hospital +[1] x14	Los Angeles	NPAssn	203	5,220	...	...	R	12	5	(106)	Req	.91	40	July
Hospital of the Good Samaritan +[1]	Los Angeles	Church	474	11,452	15	50	R	12	20	(108)	Req	34	60	July
Los Angeles County Hospital +[1-3] X13-14	Los Angeles	County	3,624	58,418	100	...	R	24	120	No	None	41	60	July
Presbyterian Hospital—Olmsted Memorial +[1]	Los Angeles	Church	365	11,182	...	...	R	12	8	No	Req	44	45	July
Queen of Angeles Hospital +	Los Angeles	Church	615	16,353	...	...	R	12	14	No	Req	44	50	July
Santa Fe Coast Lines Hospital +	Los Angeles	NPAssn	196	4,545	100	...	R	12	8	(109)	Req	59	90	July
White Memorial Hospital +[1] X13	Los Angeles	Church	255	8,901	51	100	R	12	16	No	Req	60	89	July
Highland-Alameda County Hospital +[1-3]	Oakland	County	511	9,136	100	...	R	12	23	(110)	Req	46	40	July
Permanente Foundation Hospital +[1]	Oakland	NPAssn	373	11,872	...	100	R	12	8	No	None	66	75	July
Orange County General Hospital[1]	Orange	County	380	3,286	100	..	R	12	11	No	Req	26	130	July
Collis P. and Howard Huntington Memorial Hospital +	Pasadena	NPAssn	277	10,240	4	100	R	12	8	No	Req	67	110	July
Sacramento County Hospital	Sacramento	County	400	9,483	...	...	R	12	12	No	Req	37	90	July
San Bernardino County Charity Hospital +	San Bernardino	County	358	4,475	100	...	R	12	8	No	Req	51	110	July
Mercy Hospital +[1]	San Diego	Church	425	13,594	...	...	R	12	8	No	None	26	55	July
San Diego County General Hospital +[1]	San Diego	County	888	7,855	...	..	R	12	16	No	Req	36	100	July
Children's Hospital +[1] x12	San Francisco	NPAssn	285	7,692	16	100	R	12	8	No	Req	61	35	July
Franklin Hospital +[1]	San Francisco	NPAssn	272	7,716	10	100	R	12	13	No	None	50	35	July
French Hospital +[1]	San Francisco	NPAssn	243	4,915	...	100	R	12	7	No	Req	46	35	July
Mary's Help Hospital +[1]	San Francisco	Church	230	6,022	8	100	R	12	5	No	Req	69	50	July
Mount Zion Hospital +	San Francisco	NPAssn	193	5,961	11	100	R	12	8	No	Req	64	25	July
St. Joseph's Hospital[1]	San Francisco	Church	280	7,906	10	80	R	12	8	No	None	37	50	July
St. Luke's Hospital +[1]	San Francisco	Church	254	7,625	10	50	R	12	6	No	Req	34	40	July
St. Mary's Hospital +	San Francisco	Church	431	11,757	...	...	R	12	10	No	Req	37	50	July
San Francisco Hospital +[1-4] X12-15	San Francisco	CyCo	1,416	18,736	100	...	R	12	52	(235)	Req	30	100	July
Southern Pacific General Hospital +	San Francisco	NPAssn	450	7,152	100	...	R	12	16	No	Req	34	60	July
Stanford University Hospitals +[1] X15	San Francisco	NPAssn	410	11,246	37	..	S	12	15	No	Req	57	25	July
University of California Hospital +[1] X12	San Francisco	State	316	8,891	56	44	S	12	22	(111)	Req	67	25	July
Santa Clara County Hospital +[3]	San Jose	County	450	6,082	100	...	R	12	10	No	Req	46	75	July
St. Francis Hospital	Santa Barbara	Church	110	3,585	...	...	R	12	3	No	None	45	100	Varies
Santa Barbara Cottage Hospital +[1]	Santa Barbara	NPAssn	238	6,154	...	...	R	12	6	No	None	69	50	July
Santa Barbara General Hospital	Santa Barbara	County	264	1,624	100	...	R	12	5	No	None	44	50	July
St. John's Hospital +	Santa Monica	Church	146	5,836	...	...	R	12	4	(112)	None	38	50	July
Santa Monica Hospital[1]	Santa Monica	Church	206	8,717	...	100	R	12	9	(113)	Req	48	50	MarchJuly
COLORADO														
University of Colorado Medical Center	Denver													
Colorado General Hospital +[1] X16	Denver	State	290	4,995	100	...	R	12	14	No	Req	82	30	July
Denver General Hospital + X16	Denver	CyCo	623	9,382	100	...	R	12	16	No	Req	37	30	July
Mercy Hospital[1]	Denver	Church	290	10,575	10	...	R	12	6	No	Req	40	50	July
Porter Sanitarium and Hospital[1]	Denver	Church	153	5,382	13	95	R	12	6	(114)	Req	43	55	July
Presbyterian Hospital +	Denver	Church	190	7,407	...	...	R	12	4	(115)	Req	58	32.50	July
St. Anthony Hospital[1]	Denver	Church	250	9,439	4	...	R	12	6	No	Req	31	75	July
St. Joseph's Hospital +[1]	Denver	Church	340	11,082	...	...	R	..	6	No	None	30	50	July
St. Luke's Hospital +	Denver	Church	321	9,444	...	100	R	12	8	No	Req	51	30	July
Corwin Hospital +[1]	Pueblo	NPAssn	227	5,825	100	...	R	12	6	No	Req	61	50	July

Abbreviations and other references will be found on pages 40 and 41.

Name of Hospital	Location	Control	Capacity	Total Patients Admitted	% Service Cases	% Private Patients Assigned to Interns	Type of Internship	Length of Service in Months	Internships	Affiliated Service	Outpatient Service	Autopsy Percentage	Stipend per Month	Service Commences
CONNECTICUT														
Bridgeport Hospital *[1]	Bridgeport	NPAssn	431	12,585	14	...	R	12	14	No	None	38	100	July
St. Vincent's Hospital[1]	Bridgeport	Church	422	11,603	9	.	R	12	14	No	Req	24	100	July
Danbury Hospital	Danbury	NPAssn	220	5,282	20	100	R	12	4	No	None	16	100	July
Hartford Hospital *[1]	Hartford	NPAssn	918	23,855	23	100	R	24	24	No	Req	55	20	July
J. J. McCook Memorial Hospital *[1-3]	Hartford	City	302	1,310	100	.	R	12	8	No	Req	45	70	July
St. Francis Hospital *	Hartford	Church	657	15,592	22	100	R	12	16	No	Req	32	35	July
Meriden Hospital[1]	Meriden	NPAssn	176	5,373	8	92	R	12	7	(116)	Req	38	100	July
Middlesex Hospital	Middletown	NPAssn	173	4,906	16	.	R-M24		6	(117)	None	41	100	July
New Britain General Hospital *[1]	New Britain	NPAssn	258	7,762	14	71	R-M12		8	No	None	53	50	July
Grace-New Haven Community Hospital														
Grace Unit *	New Haven	NPAssn	270	6,573	30	62	R	12	8	No	Req	37	25	July
New Haven Unit (University Service) *[1-3] X17	New Haven	NPAssn	598	12,216	46	51	S	12	36	No	Req	59	No	July
Hospital of St. Raphael *	New Haven	Church	390	10,738	20	95	R	24	14	No	Req	31	50	July
Lawrence and Memorial Assoc. Hospitals *[1]	New London	NPAssn	330	6,415	30		R	12	4	No	None	27	105	July
Norwalk Hospital *	Norwalk	NPAssn	285	7,507	7	99	R	12	7	No	Req	34	50	July
William W. Backus Hospital	Norwich	NPAssn	155	6,111	14	100	R	12	3	No	Req	33	200	July
Stamford Hospital	Stamford	NPAssn	275	6,601	11	100	R	12	9	No	Req	50	100	July
St. Mary's Hospital *[1-3]	Waterbury	Church	384	9,578	12	100	R	12	8	No	Req	32	75	July
Waterbury Hospital *[1-3]	Waterbury	NPAssn	378	11,026	10	100	R	12	8	No	Req	40	75	JulyOct
DELAWARE														
Delaware Hospital *[5]	Wilmington	NPAssn	410	9,464	18	100	R	12	14	No	Req	56	75	July
Memorial Hospital * X61	Wilmington	NPAssn	248	5,636	25	100	R	12	7	No	Req	51	100	July
DISTRICT OF COLUMBIA														
Central Dispensary and Emergency Hospital *[1-3] x19	Washington	NPAssn	310	7,891	10		R	12	14	(118)	Req	38	25	July
Doctors Hospital *	Washington	Corp	301	8,771	10	100	R	12	8	(119)	None	74	50	July
Freedmen's Hospital *[1-3]	Washington	See Federal Security Agency, page 30												
Gallinger Municipal Hospital *[1-3] X18-19	Washington	City	1,536	21,116	100	..	S	12	46	No	Req	55	50	July
Garfield Memorial Hospital *[1-3] x19	Washington	NPAssn	477	11,461	20	20	R	12	16	No	Req	50	15	July
Georgetown University Hospital *[3] X18	Washington	NPAssn	443	6,844	10	100	S	12	16	No	Req	54	25	July
George Washington University Hospital * X19	Washington	NPAssn	400	3,063	5	100	S	12	7	(120)	None	67	25	July
Providence Hospital *[1-2] x18	Washington	Church	400	12,335	10	100	R	12	13	No	Req	68	50	July
St. Elizabeths Hospital *[1-3] x18-19	Washington	See Federal Security Agency, page 30												
Sibley Memorial Hospital *[1]	Washington	Church	331	11,588	2	..	R	12	9	No	Req	68	50	July
Washington Sanitarium and Hospital, Takoma Pk.[3]	Washington	Church	217	3,962	60	...	R	12	4	No	None	36	108	July
FLORIDA														
Duval County Hospital *	Jacksonville	County	235	3,657	100	..	R	12	10	No	Req	43	15	July
St. Luke's Hospital *	Jacksonville	NPAssn	210	7,423	5	15	R	12	6	No	Req	23	65	July
St. Vincent's Hospital *	Jacksonville	Church	290	13,515	2	..	R	12	5	No	None	36	50	July
Jackson Memorial Hospital *[1-3]	Miami	City	604	18,207	30	100	R	12	22	No	Req	32	34.50	July
Orange Memorial Hospital[1]	Orlando	NPAssn	263	7,076	6	100	R	12	6	No	None	26	75	July
Tampa Municipal Hospital[1]	Tampa	City	341	10,191	15	4	R	12	8	No	None	21	50	July
GEORGIA														
Crawford W. Long Memorial Hospital *[1]	Atlanta	NPAssn	449	16,095	2	80	R	12	16	(121)	Req	40	50	July
Georgia Baptist Hospital *	Atlanta	Church	214	6,986	5	100	R	12	7	No	Req	26	35	July
Grady Memorial Hospital *[1-3] X21	Atlanta	Counties	700	16,937	100	...	S	12	30	No	Req	50	10	July
Piedmont Hospital *[1] x21	Atlanta	NPAssn	150	5,087	.	.	R	12	5	No	None	45	35	July
St. Joseph's Infirmary *[1]	Atlanta	Church	177	6,647	18	100	R	12	6	No	Req	39	50	July
University Hospital *[1] X22	Augusta	City	551	14,532	29	100	R	12	20	No	None	25	20	July
Emory University Hospital * X21	Emory University	NPAssn	310	9,757	5	100	S	12	12	No	Req	46	25	July
Macon Hospital	Macon	CyCo	288	9,757	100	.	R	12	10	No	Req	19	50	July
ILLINOIS														
MacNeal Memorial Hospital	Berwyn	NPAssn	195	7,848	6	100	R	12	10	No	Req	45	50	JanJuly
Alexian Brothers Hospital (*b*) *	Chicago	Church	211	4,772	10	100	R	12	7	(122)	None	51	50	July
American Hospital *[1]	Chicago	NPAssn	185	6,873	17	86	R	12	4	No	None	31	25	JanJuly
Augustana Hospital *	Chicago	Church	305	7,737	6	75	R	12	9	No	Req	48	No	July
Belmont Community Hospital	Chicago	NPAssn	137	4,566	. .	...	R	12	4	No	None	30	100	March
Chicago Memorial Hospital *[1]	Chicago	NPAssn	112	3,002	.	100	R	12	5	No	Req	63	150	July
Columbus Hospital	Chicago	Church	150	3,444	15	100	R	12	6	(123)	None	58	100	July
Cook County Hospital *[1-3] X23-24-26	Chicago	County	3,505	72,273	100	..	R	24	108	No	Req	23	13	July
Edgewater Hospital *	Chicago	NPAssn	176	6,935	.	100	R	12	8	No	None	44	100	JanJuly
[illegible]	Chicago	NPAssn	189	6,517	2	20	R	12	6	No	None	36	100	Varies
[illegible]	Chicago	Church	255	8,241	...	..	R	12	6	No	None	25	150	July
Hospital	Chicago	Church	182	5,539	...	100	R	12	6	No	None	23	100	July
[illegible]	Chicago	NPAssn	288	7,625	.	...	R	12	10	No	Req	53	50	July
[illegible]	Chicago	NPAssn	127	3,415	45	100	R	12	4	No	Req	60	75	July
[illegible]	Chicago	NPAssn	166	6,154	..	...	R	12	6	No	None	31	100	JanJuly
le Padua *[1]	Chicago	Church	250	8,076	2	100	R	12	9	No	None	29	100	Varies
*[1]	Chicago	NPAssn	290	6,675	52	..	R	12	9	No	Req	37	110	Varies
Illinois Masonic Hospital *[1]	Chicago	NPAssn	265	6,542	...	100	R	12	6	No	Req	57	25	JanJuly
Jackson Park Hospital[1]	Chicago	Corp	160	3,945	...	100	R	12	6	No	None	40	150	Varies
Loretto Hospital *[1] x23	Chicago	Church	165	5,103	.	100	R	12	6	No	None	73	100	July
Lutheran Deaconess Home and Hospital *[1]	Chicago	Church	235	9,445	14	..	R	12	7	No	None	42	75	July
Mercy Hospital * X23	Chicago	Church	409	9,320	20	80	R	12	16	No	Req	45	25	July
Michael Reese Hospital *[1] x24-26	Chicago	NPAssn	718	16,081	31	...	R	12	36	No	Req	67	15	July
Mother Cabrini Memorial Hospital	Chicago	Church	159	4,791	28	100	R	12	5	No	None	32	100	July
Mount Sinai Hospital *[1]	Chicago	NPAssn	277	8,313	15	100	R	12	13	(124)	Op	47	15	July
Norwegian-American Hospital *[1]	Chicago	NPAssn	214	7,997	...	..	R	12	6	No	None	35	100	July
Passavant Memorial Hospital *[1] X24	Chicago	NPAssn	255	5,838	10	100	R	12	12	(125)	None	68	No	Quarterly
Presbyterian Hospital * X26	Chicago	Church	487	12,654	...	100	R	24	27	No	None	66	No	Varies
Provident Hospital *[1]	Chicago	NPAssn	208	5,287	...	...	R	12	9	No	Req	54	25	July
Ravenswood Hospital *	Chicago	NPAssn	192	6,105	. .	...	R	12	8	No	Req	69	50	July
Research and Educational Hospitals *[1-3] X26	Chicago	State	452	6,591	100	...	R	12	21	No	Req	83	No	July
Roseland Community Hospital	Chicago	NPAssn	125	4,012	...	...	R	12	4	No	None	38	165	JanJuly
St. Anne's Hospital * x23	Chicago	Church	395	9,325	3	...	R	12	11	No	None	45	75	July
St. Bernard's Hospital *	Chicago	Church	231	10,353	...	...	R	12	8	No	None	30	100	JanJuly
St. Elizabeth's Hospital *[1]	Chicago	Church	351	9,936	...	...	R	12	8	No	None	40	75	July
St. Joseph Hospital *[1] X24	Chicago	Church	300	7,259	...	100	R	12	7	No	Req	50	50	July
St. Luke's Hospital *[1] X24	Chicago	NPAssn	589	15,486	12	100	R	12	40	No	Req	62	No	July
St. Mary of Nazareth Hospital *	Chicago	Church	323	10,010	...	80	R	12	8	No	None	40	100	July
South Chicago Community Hospital	Chicago	NPAssn	189	5,882	...	...	R	12	6	No	None	24	100	July

Abbreviations and other references will be found on pages 40 and 41.

Name of Hospital	Location	Control	Capacity	Total Patients Admitted	% Service Cases	% Private Patients Assigned to Interns	Type of Internship	Length of Service in Months	Internships	Affiliated Service	Outpatient Service	Autopsy Percentage	Stipend per Month	Service Commences
ILLINOIS—Continued														
Swedish Covenant Hospital +[1]	Chicago	Church	258	6,569	...	...	R	12	8	No	None	30	75	JanJuly
University Hospital[1] X23	Chicago	NPAssn	100	3,343	...	100	M	12	4	No	None	21	15	....
University of Chicago Clinics +[1-3] X25	Chicago	NPAssn	660	12,615	...	100	R	12	48	No	Req	79	No	July
Walther Memorial Hospital[1]	Chicago	Church	206	6,561	...	...	R	12	6	No	None	35	100	July
Wesley Memorial Hospital +[1] X24	Chicago	Church	630	13,045	9	100	R	12	33	No	None	66	No	JanJuly
Women and Children's Hospital +[2]	Chicago	NPAssn	145	4,022	18	100	R	12	4	No	Req	53	50	JanJuly
Woodlawn Hospital +[1]	Chicago	NPAssn	134	4,320	36	...	R	12	6	No	None	59	100	JanJuly
St. Mary's Hospital	East St. Louis	Church	301	6,640	...	...	R	12	6	No	None	..	150	July
Evanston Hospital + X24	Evanston	NPAssn	296	7,995	5	100	R	12	18	(126)	Req	86	No	JanJuly
St. Francis Hospital +	Evanston	Church	430	10,957	2	100	R	12	13	No	None	60	50	July
Little Company of Mary Hospital +	Evergreen Park	Church	265	10,058	...	100	R	12	12	No	None	29	100	July
St. Joseph's Hospital	Joliet	Church	348	8,681	...	100	R & M	18	6	No	None	24	75	July
Moline Public Hospital[1]	Moline	City	246	7,055	...	100	R	12	3	No	None	19	100	JanJuly
Oak Park Hospital	Oak Park	Church	188	5,432	...	...	R	12	5	No	None	28	75	July
West Suburban Hospital + x26	Oak Park	NPAssn	412	11,691	...		R	12	12	No	Req	48	50	AprJuly
Methodist Hospital of Central Illinois +	Peoria	Church	240	6,700	..	100	R	12	8	No	None	32	100	July
St. Francis Hospital +[1]	Peoria	Church	593	14,281	10	100	R	12	10	No	Req	52	75	July
St. Mary's Hospital[1]	Quincy	Church	205	5,223	25	75	R	12	3	No	None	16	75	July
Memorial Hospital[1]	Springfield	NPAssn	281	6,390	...	...	R	12	6	No	None	39	50	July
INDIANA														
St. Catherine Hospital[1]	East Chicago	Church	324	8,800	...	...	R	12	7	No	None	28	100	July
Protestant Deaconess Hospital[1]	Evansville	Church	299	11,329	12	...	R	12	6	No	None	29	75	July
St. Mary's Hospital	Evansville	Church	208	4,936	4	...	R	12	4	No	None	24	25	Varies
Lutheran Hospital	Fort Wayne	Church	250	6,572	3	...	R	12	4	No	Req	22	75	July
St. Joseph Hospital +	Fort Wayne	Church	350	7,782	...	...	R	12	5	No	None	38	100	July
Methodist Hospital[1]	Gary	Church	275	7,844	..	...	R	12	6	No	None	33	125	July
St. Mary's Mercy Hospital +	Gary	Church	286	7,641	7	..	R	12	6	No	Req	23	125	July
St. Margaret Hospital +	Hammond	Church	320	10,383	...	100	R	12	10	No	None	26	125	July
Indianapolis General Hospital +[1-3] X27	Indianapolis	City	741	10,246	90	100	R	24	32	(127)	Req	33	60	July
Indiana University Medical Center +[1-3] X27	Indianapolis	State	646	10,995	66	100	R	12	35	(231)	Req	56	12.50	July
Methodist Hospital +[1]	Indianapolis	Church	726	24,752	5	100	R	12	24	No	Op	32	137.50	July
St. Vincent's Hospital +	Indianapolis	Church	400	12,377	...	100	R	12	16	No	Req	26	150	July
St. Elizabeth Hospital +	La Fayette	Church	359	9,237	5	98	R & M	12	8	(127)	Req	26	100	July
St. Joseph Hospital	Mishawaka	Church	120	3,390	...	.	R	12	2	No	None	29	75	July
Ball Memorial Hospital +[1]	Muncie	NPAssn	247	8,469	...	100	R	12	8	No	None	37	50	July
Memorial Hospital +	South Bend	NPAssn	265	7,913	..	...	R	12	5	No	Req	49	75	July
St. Joseph Hospital	South Bend	Church	223	6,439	19	100	R	12	6	No	Req	34	75	July
Union Hospital	Terre Haute	NPAssn	208	5,898	..	..	R	12	2	No	...	34	80	July
St. Anthony Hospital[1]	Terre Haute	Church	225	5,725	3	35	R	12	2	No	None	20	100	July
IOWA														
Mercy Hospital[1]	Cedar Rapids	Church	217	6,876	...	..	R	12	2	No	None	31	100	July
Jennie Edmundson Memorial Hospital[1]	Council Bluffs	NPAssn	150	5,364	...	100	R & M	12	3	No	None	28	75	July
Mercy Hospital x43	Council Bluffs	Church	172	4,386		...	R	12	4	No	None	21	75	June
Broadlawns Polk County Hospital[1]	Des Moines	County	226	4,722	100	..	R	12	10	No	Req	59	75	JanJuly
Iowa Lutheran Hospital[1]	Des Moines	Church	155	4,644	1	100	R	12	3	No	None	22	100	July
Iowa Methodist Hospital +[1]	Des Moines	Church	334	10,806	...	100	R	12	12	No	None	71	75	July
Mercy Hospital +	Des Moines	Church	220	7,812	. .	.	R	12	6	(128)	Req	54	70	July
University Hospitals +[1-3] X28	Iowa City	State	950	18,304	...	100	R	12	20	No	Req	63	35	July
St. Joseph Mercy Hospital	Sioux City	Church	306	8,811	...	...	R	12	5	No	Req	15	No	Jan
KANSAS														
Bethany Hospital[1] x29	Kansas City	Church	180	5,061	...	..	R	12	6	No	None	45	50	July
Providence Hospital[1]	Kansas City	Church	205	5,154	..	100	R	12	4	No	None	71	50	July
St. Margaret's Hospital +[1]	Kansas City	Church	228	5,050	7	100	R	12	6	No	None	46	75	July
University of Kansas Hospitals +[1-3] X29	Kansas City	State	400	8,463	49	...	R	12	12	No	None	65	25	July
St. Francis Hospital +	Wichita	Church	450	13,155	...	100	R	12	12	No	No	41	75	AprJuly
Wesley Hospital +	Wichita	Church	379	9,564	...	100	R	12	7	(129)	Req	33	75	July
Wichita Hospital[1]	Wichita	Church	165	3,702	...	4	R & M	12	6	(130)	None	27	150	July
KENTUCKY														
St. Elizabeth Hospital[1]	Covington	Church	364	8,430	8	100	R	12	10	No	Req	18	75	July
Goo [illegible]	Lexington	Church	320	8,013	...	100	R	12	6	No	None	35	60	July
St. [illegible]	Lexington	Church	316	11,332	15	97	R	12	4	(131)	Req	41	75	July
Ke [illegible]	Louisville	Church	230	7,014	2	...	R	12	8	No	None	35	35	July
Lou [illegible] X30	Louisville	CyCo	310	8,053	100	...	R	12	28	(132)	Req	41	20	July
Norton Memorial Infirmary +	Louisville	NPAssn	187	6,195	4	85	R	12	6	(133)	None	47	50	July
St. Anthony Hospital	Louisville	Church	176	5,413	...	...	R	12	3	No	None	28	100	July
St. Joseph Infirmary +	Louisville	Church	400	11,958	7	...	R	12	11	No	Req	43	50	July
SS. Mary and Elizabeth Hospital	Louisville	Church	267	7,808	10	...	R	12	4	No	None	18	100	July
LOUISIANA														
Charity Hospital of Louisiana +[1-3] X31-32	New Orleans	State	3,676	45,781	100	...	R	12	120	No	Req	49	10	July
Flint Goodridge Hospital of Dillard University[1]	New Orleans	NPAssn	117	2,402	48	...	R	12	3	No	Req	30	50	July
Hotel Dieu, Sisters' Hospital +[1]	New Orleans	Church	356	11,348	3	100	R	12	10	No	None	32	50	July
Mercy Hospital-Soniat Memorial	New Orleans	Church	157	5,196	...	...	R	12	4	No	None	28	100	July
Southern Baptist Hospital +	New Orleans	Church	445	23,996	28	100	R	12	16	No	None	34	25	July
Touro Infirmary + x32	New Orleans	NPAssn	424	13,020	8	100	R	12	21	No	Req	54	10	July
Highland Sanitarium[1]	Shreveport	Part	118	4,164	...	100	R	12	4	No	None	38	75	July
North Louisiana Sanitarium[1]	Shreveport	Corp	147	5,262	...	100	R	12	2	(134)	None	25	75	July
T. E. Schumpert Memorial Sanitarium	Shreveport	Church	130	4,722	...	...	R	12	2	No	Req	25	100	July
Shreveport Charity Hospital +	Shreveport	State	702	13,666	100	...	R	12	27	No	Req	45	20	July
Tri-State Hospital[1]	Shreveport	Corp	140	5,483	...	...	R	12	4	No	Req	17	100	July
MAINE														
Eastern Maine General Hospital[1]	Bangor	NPAssn	243	7,300	33	98	R	12	6	No	Req	35	25	July
Central Maine General Hospital +[1]	Lewiston	NPAssn	264	5,721	...	100	R	12	6	No	Req	46	25	July
St. Mary's General Hospital	Lewiston	Church	180	4,154	11	25	R	12	3	No	Req	39	80	MarJuly
Maine General Hospital +	Portland	NPAssn	385	8,400	60	15	R	12	9	No	Req	48	25	JanJuly

Abbreviations and other references will be found on pages 40 and 41.

Name of Hospital	Location	Control	Capacity	Total Patients Admitted	% Service Cases	% Private Patients Assigned to Interns	Type of Internship	Length of Service in Months	Internships	Affiliated Service	Outpatient Service	Autopsy Percentage	Stipend per Month	Service Commences
MARYLAND														
Baltimore City Hospitals +[1-3] x33	Baltimore	City	2,105	7,480	...	..	R	12	40	No	Req	58	15	July
Bon Secours Hospital +	Baltimore	Church	180	4,786	12	100	R	12	4	No	Req	16	30	July
Church Home and Hospital +[1]	Baltimore	Church	103	5,177	13	100	R	12	7	No	Req	51	25	July
Franklin Square Hospital +[1]	Baltimore	NPAssn	274	5,027	12	...	R	12	6	No	Req	30	50	July
Hospital for Women +[1]	Baltimore	NPAssn	162	4,119	27	100	R	12	5	No	Req	21	25	July
Johns Hopkins Hospital +[1-3] X33	Baltimore	NPAssn	1,065	19,857	61	100	S	12	80	No	Req	72	No	July
Maryland General Hospital +[1]	Baltimore	Church	268	6,075	19	100	R	12	8	No	Req	24	25	July
Mercy Hospital + X34	Baltimore	Church	339	8,911	40	100	R	12	14	No	Req	37	25	July
Provident Hospital and Free Dispensary +	Baltimore	NPAssn	145	2,737	...	...	R	12	8	No	Req	27	25	July
St. Agnes' Hospital +	Baltimore	Church	277	6,717	25	100	R	12	6	No	Req	33	30	July
St. Joseph's Hospital +[2]	Baltimore	Church	287	7,184	23	100	R	12	8	No	Req	26	25	July
Sinai Hospital +[1-3]	Baltimore	NPAssn	368	9,227	21	100	R & S	12	19	(135)	Req	58	10	July
South Baltimore General Hospital +[1]	Baltimore	NPAssn	181	6,122	30	100	R	12	7	No	Req	18	50	July
Union Memorial Hospital +	Baltimore	NPAssn	377	9,108	20	..	R	12	17	No	Req	34	No	July
University Hospital +[1-3] X34	Baltimore	State	505	10,618	43	100	R & S	24	24	No	Req	49	No	July
West Baltimore General Hospital +[1]	Baltimore	NPAssn	222	6,378	14	...	R	12	6	No	None	52	50	July
Suburban Hospital +	Bethesda	NPAssn	124	3,577	17	...	R	12	3	No	Req	41	50	July
Washington County Hospital[1]	Hagerstown	NPAssn	206	6,467	...	...	R	12	6	No	Req	21	75	July
MASSACHUSETTS														
Beverly Hospital +[1]	Beverly	NPAssn	207	5,312	30	70	R	12	4	No	Req	87	No	July
Beth Israel Hospital + X36-37	Boston	NPAssn	215	5,917	36	...	S	12	12	(136)	Req	55	No	July
Boston City Hospital +[1-3] X35-36-37	Boston	City	2,537	36,794	100	...	S	12	125	No	Req	34	No	July
Carney Hospital + X37	Boston	Church	262	6,164	23	99	S	..	8	(137)	Req	48	No	July
Children's Hospital +[1-3] X36x37	Boston	NPAssn	315	8,329	67	..	S	12	20	(138)	Req	80	No	July
Faulkner Hospital +	Boston	NPAssn	161	3,570	..	100	R	12	3	No	None	46	No	July
Massachusetts General Hospital +[1] X36	Boston	NPAssn	419	7,594	100	..	S	12	31	No	Req	62	No	July
Massachusetts Memorial Hospitals +[1-3] X35	Boston	NPAssn	529	7,419	...	100	R	12	20	(139)	Req	60	No	July
New England Hospital for Women and Children +[2] x37	Boston	NPAssn	260	5,027	34	100	R & S	12	8	No	Req	52	No	Nov
Peter Bent Brigham Hospital +[1-3] X36	Boston	NPAssn	250	4,987	70	10	S	12	25	(140)	Req	68	No	July
St. Elizabeth's Hospital +[1] X37	Boston	Church	322	6,900	12	95	R	12	8	No	Req	53	25	July
Cambridge City Hospital + x37	Cambridge	City	400	6,110	43	...	R	12	8	No	Req	45	10	MarJuly
Mount Auburn Hospital +[1] X37	Cambridge	NPAssn	272	6,873	15	50	R	12	6	No	Req	41	No	July
Chelsea Memorial Hospital	Chelsea	NPAssn	123	2,982	11	100	R	12	2	No	Req	...	50	Jan
Truesdale Hospital +	Fall River	NPAssn	200	4,808	...	...	R	12	3	No	Req	53	35	July
Union Hospital[1]	Fall River	NPAssn	207	5,246	15	90	R	12	3	No	Req	24	100	June
Burbank Hospital[1]	Fitchburg	City	286	5,556	31	...	R	12	4	No	Req	26	75	Varies
Holyoke Hospital[1]	Holyoke	NPAssn	161	3,611	12	...	R	12	3	No	Req	33	25	July
Providence Hospital	Holyoke	Church	200	4,817	...	...	R	12	4	No	None	...	50	JanJuly
Lawrence General Hospital +	Lawrence	NPAssn	233	8,480	25	...	R	12	3	No	Req	62	50	July
Lowell General Hospital	Lowell	NPAssn	213	4,964	16	...	R	12	3	No	Req	26	25	AprJuly
St. John's Hospital	Lowell	Church	221	5,539	30	75	R	12	4	No	Req	32	50	July
St. Joseph's Hospital	Lowell	Church	170	4,734	20	25	R	12	3	No	Req	16	25	June
Lynn Hospital	Lynn	NPAssn	316	8,110	20	...	R	12	6	No	Req	25	50	July
St. Luke's Hospital[1]	New Bedford	NPAssn	339	7,635	33	...	R	12	8	No	Req	26	25	July
Newton-Wellesley Hospital +[1]	Newton	NPAssn	205	6,652	21	45	R	12	6	No	Req	16	No	July
House of Mercy Hospital	Pittsfield	NPAssn	220	4,632	11	...	R	12	2	No	Req	24	50	July
St. Luke's Hospital[1]	Pittsfield	Church	194	4,406	5	...	R	12	2	No	None	26	100	Varies
Quincy City Hospital +[1]	Quincy	City	381	8,149	8	85	R	12	12	No	Req	50	75	July
Salem Hospital +[3]	Salem	NPAssn	251	6,077	17	...	R	12	6	No	Req	36	30	July
Mercy Hospital	Springfield	Church	400	11,018	9	98	R	12	6	No	Req	21	40	July
Springfield Hospital[1]	Springfield	NPAssn	285	7,499	14	25	R	12	8	(141)	Req	44	No	July
Wesson Memorial Hospital[1]	Springfield	NPAssn	112	3,459	8	80	R	12	3	(142)	None	38	50	Varies
Waltham Hospital	Waltham	NPAssn	211	4,316	10	...	R	12	4	No	Req	23	30	July
Memorial Hospital +[1-3]	Worcester	NPAssn	215	10,197	15	100	R	12	10	No	Req	54	50	July
St. Vincent Hospital +	Worcester	Church	277	7,715	12	85	R	12	8	No	None	37	No	July
Worcester City Hospital +[1-3] x37-75	Worcester	City	510	7,859	70	100	R	12	20	No	Req	39	No	July
Worcester Hahnemann Hospital[1]	Worcester	NPAssn	163	4,417	3	97	R	12	4	No	None	34	35	Apr
MICHIGAN														
St. Joseph's Mercy Hospital +[1]	Ann Arbor	Church	314	7,591	...	98	R	12	6	No	Req	56	100	July
University Hospital +[1] X38	Ann Arbor	State	884	16,101	100	...	R	12	37	No	Req	62	84.73	July
Leila Y. Post Montgomery Hospital +	Battle Creek	Church	200	7,157	...	100	R	12	2	No	Req	49	100	July
Mercy Hospital[1]	Bay City	Church	165	5,445	...	100	R	12	3	No	Req	...	100	July
Charles Godwin Jennings Hospital +	Detroit	NPAssn	108	2,616	...	...	R	12	4	(143)	None	46	125	July
City of Detroit Receiving Hospital +[1] X39	Detroit	City	633	18,183	100	...	R & M	12	40	(144)	Req	27	120	July
Evangelical Deaconess Hospital +[1]	Detroit	Church	220	8,747	4	30	R	12	6	No	Req	54	150	July
Grace Hospital +[1]	Detroit	NPAssn	514	17,768	7	100	R	12	32	No	Req	63	50	JulSept
Harper Hospital +[1]	Detroit	NPAssn	685	20,948	3	100	R	12	36	(145)	Req	28	28	July
Henry Ford Hospital +[1-3]	Detroit	NPAssn	648	16,116	90	100	R	12	36	(146)	None	69	170	July
Mount Carmel Mercy Hospital +	Detroit	Church	575	15,527	10	75	R	12	12	No	None	34	50	July
Providence Hospital +	Detroit	Church	460	13,067	10	10	R	12	16	(147)	Req	52	125	July
St. Joseph's Mercy Hospital +[1]	Detroit	Church	246	6,566	...	...	R	12	8	No	Req	27	150	July
St. Mary's Hospital +[1]	Detroit	Church	350	9,979	11	100	R	12	12	(148)	Req	54	125	Varies
Woman's Hospital +[1]	Detroit	NPAssn	351	8,757	...	100	R	12	7	(149)	Req	51	85	July
Wayne County General Hospital and Infirmary +[1] X39	Eloise	County	5,127	6,503	99	...	R	12	24	(144)	Req	35	186.25	July
Hurley Hospital +	Flint	City	484	18,009	...	...	R	12	16	No	None	30	110	July
St. Joseph Hospital	Flint	Church	275	9,333	...	...	R	12	4	No	None	28	...	July
Blodgett Memorial Hospital +[1]	Grand Rapids	NPAssn	210	5,611	...	100	R	12	6	No	Req	61	75	July
Butterworth Hospital +[1]	Grand Rapids	NPAssn	330	10,704	7	100	R	12	8	No	Req	43	50	July
St. Mary's Hospital +	Grand Rapids	Church	318	8,916	2	100	R	12	8	No	Req	42	100	July
Highland Park General Hospital +[1]	Highland Park	City	300	8,428	5	100	R	12	9	No	Req	34	100	July
W. A. Foote Memorial Hospital	Jackson	City	185	8,061	...	...	R	12	2	No	None	25	100	JanJuly
Mercy Hospital[1-3]	Jackson	Church	155	5,265	...	...	R	12	3	(150)	None	23	150	July
Borgess Hospital +	Kalamazoo	Church	282	7,220	...	...	R	12	4	No	None	26	100	July
Bronson Methodist	Kalamazoo	Church	175	5,567	...	...	R	12	4	No	None	45	100	July
Edward W. Sparrow	Lansing	NPAssn	253	8,208	3	100	R	12	7	(151)	Req	58	250	July
St. Lawrence Hospital	Lansing	Church	260	7,842	...	...	R	12	8	(152)	None	50	...	July
Hackley Hospital +	Muskegon	NPAssn	189	6,986	...	...	R	12	6	No	None	22	...	July
Pontiac General Hospital +	Pontiac	City	224	7,380	...	100	R	12	6	No	Req	48	50	July
Saginaw General Hospital +	Saginaw	NPAssn	254	7,845	...	100	R	12	4	(153)	Req	52	50	July
St. Mary's Hospital	Saginaw	Church	204	6,419	...	...	R	12	2	No	None	15	...	July

Abbreviations and other references will be found on pages 40 and 41.

Name of Hospital	Location	Control	Capacity	Total Patients Admitted	% Service Cases	% Private Patients Assigned to Interns	Type of Internship	Length of Service in Months	Internships	Affiliated Service	Outpatient Service	Autopsy Percentage	Stipend per Month	Service Commences
MINNESOTA														
St. Luke's Hospital +	Duluth	NPAssn	270	9,738	...	100	R	12	11	(154)	Req	75	25	July
St. Mary's Hospital +	Duluth	Church	300	10,008	...	100	R	12	10	(154)	Req	69	25	July
Asbury Hospital[1]	Minneapolis	Church	173	6,203	...	...	R	12	4	No	None	48	50	Varies
Minneapolis General Hospital +[1-3] X40	Minneapolis	City	620	9,259	...	100	R	12	30	(155)	Req	44	25	JanJuly
Northwestern Hospital +[1]	Minneapolis	NPAssn	332	9,200	...	...	R	12	12	(156)	None	56	50	July
St. Barnabas Hospital +[1]	Minneapolis	NPAssn	249	8,419	...	...	R	12	4	No	None	73	100	July
St. Mary's Hospital +[1]	Minneapolis	Church	375	12,800	...	100	R	12	10	No	None	40	50.	July
Swedish Hospital +[1]	Minneapolis	NPAssn	372	11,734	...	...	R	12	8	No	None	43	77.50	July
University Hospitals +[1-3] X40	Minneapolis	State	475	9,532	100	...	S	12	28	No	Req	82	15	July
Ancker Hospital +[3]	St. Paul	CyCo	905	7,029	100	..	R	12	32	No	Req	71	30	July
Bethesda Hospital[1]	St. Paul	Church	200	7,102	...	100	R	12	6	(157)	Req	42	100	July
Charles T. Miller Hospital +[1]	St. Paul	NPAssn	325	8,683	...	100	R	12	10	(232)	Req	54	50	July
St. Joseph's Hospital[1]	St. Paul	Church	310	9,497	17	100	R	12	10	(157)	None	41	60	July
MISSOURI														
St. Louis County Hospital +	Clayton	County	268	3,226	95	5	R	12	6	No	Req	48	50	July
Kansas City General Hospital No. 1 +[3] x29	Kansas City	City	600	9,583	100	...	R	12	28	No	Req	61	25	July
Kansas City General Hospital No. 2[1-3]	Kansas City	City	286	3,722	100	...	R	12	12	(158)	Req	23	25	July
Menorah Hospital +[1]	Kansas City	NPAssn	186	5,608	10	100	R	12	4	No	Req	38	100	July
Research Hospital +[1]	Kansas City	NPAssn	251	7,628	...	100	R	12	8	No	None	64	50	July
St. Joseph Hospital +	Kansas City	Church	361	12,163	15	100	R	12	8	No	None	57	75	July
St. Luke's Hospital +[1]	Kansas City	Church	430	8,630	...	...	R	12	8	No	None	77	50	July
St. Mary's Hospital +[1]	Kansas City	Church	110	6,417	...	100	R	12	5	No	None	62	75	July
Trinity Lutheran Hospital[1]	Kansas City	Church	145	4,571	...	...	R	12	4	No	None	55	100	July
Missouri Methodist Hospital	St. Joseph	Church	250	6,876	1	98	R-M	12	5	No	Req	18	150	July
St. Joseph's Hospital[1]	St. Joseph	Church	176	5,001	10	75	R	12	2	No	None	22	125	JanJuly
Barnes Hospital +[1-3] X42	St. Louis	Church	585	15,018	35	100	S	12	31	(159)	Req	72	10	July
Christian Hospital	St. Louis	NPAssn	155	3,609	..	100	R	12	3	No	None	26	125	July
Evangelical Deaconess Hospital[1]	St. Louis	Church	290	11,689	...	...	R	12	4	No	None	...	50	July
Homer G. Phillips Hospital +[1-3] x42	St. Louis	City	767	12,417	100	...	R	12	36	(160)	Req	22	25	July
Jewish Hospital +[1]	St. Louis	NPAssn	340	8,547	10	.	R	12	12	No	Req	42	35	July
Lutheran Hospital[1]	St. Louis	Church	205	6,081	4	100	R	12	6	No	None	22	65	July
Missouri Baptist Hospital +	St. Louis	Church	500	11,859	...	100	R	12	8	No	None	29	35	July
St. Anthony's Hospital +	St. Louis	Church	316	7,700	...	...	R	12	8	(161)	Op	47	35	July
St. John's Hospital +	St. Louis	Church	421	9,376	3	100	R	12	12	No	Req	31	25	July
St. Louis City Hospital +[1-3] x42	St. Louis	City	1,125	17,898	100	...	R	12	60	(162)	Req	53	70	July
St. Luke's Hospital +[1]	St. Louis	Church	220	5,219	6	100	R	12	12	(163)	Req	39	25	July
St. Mary's Group of Hospitals + X41	St. Louis	Church	751	15,720	10	99	R	12	34	(164)	Req	49	15	July
St. Mary's Infirmary	St. Louis	Church	179	3,794	10	100	R	12	4	No	None	23	10	July
MONTANA														
Murray Hospital	Butte	Corp	120	2,912	..	100	R	12	4	No	Req	31	175	Varies
St. James Hospital[1]	Butte	Church	190	4,201	14	25	R	12	3	No	Req	18	100	Varies
Montana Deaconess Hospital +[1]	Great Falls	Church	246	6,970	...	...	R	..	4	No	None	60	25	July
NEBRASKA														
Bryan Memorial Hospital[1-3]	Lincoln	Church	130	3,467	...	75	R	12	2	No	None	56	100	July
Lincoln General Hospital +[1-3]	Lincoln	NPAssn	223	6,662	...	...	R	12	4	No	None	46	50	July
St. Elizabeth Hospital	Lincoln	Church	250	7,760	...	75	R	12	4	No	None	28	75	July
Bishop Clarkson Memorial Hospital + x44	Omaha	Church	177	6,234	...	...	R	12	5	No	Req	37	50	July
Creighton Memorial St. Joseph's Hospital +[1] X43	Omaha	Church	534	12,361	8	100	R	12	14	No	Req	41	25	July
Immanuel Deaconess Institute	Omaha	Church	160	4,683	...	100	R	12	4	No	None	58	50	July
Nebraska Methodist Hospital +[1] x44	Omaha	Church	191	6,532	...	100	R	12	6	No	None	56	40	AprilJuly
St. Catherine's Hospital x43	Omaha	Church	203	5,652	...	90	R	12	4	No	None	28	75	July
University of Nebraska Hospital +[1] X44	Omaha	State	212	2,895	100	...	R	12	12	No	Req	98	40	July
NEW HAMPSHIRE														
Mary Hitchcock Memorial Hospital +	Hanover	NPAssn	196	5,091	26	100	R	12	9	No	Req	75	No	July
NEW JERSEY														
Atlantic City Hospital +	Atlantic City	NPAssn	320	8,237	47	50	R	12	8	No	Req	35	50	July
Bayonne Hospital and Dispensary +[1]	Bayonne	NPAssn	280	5,941	40	100	R	12	6	No	Req	23	65	Varies
Cooper Hospital + x62-64	Camden	NPAssn	447	9,346	57	...	R	12	12	No	Req	15	15	July
West Jersey Hospital + x61	Camden	NPAssn	341	8,172	...	...	R	12	8	No	Req	48	125	July
East Orange General Hospital[1]	East Orange	NPAssn	150	3,438	6	100	R	12	4	(165)	Req	33	50	July
Alexian Brothers Hospital(*b*)	Elizabeth	Church	150	2,796	15	...	R	12	4	(166)	Req	20	...	July
Elizabeth General Hospital and Dispensary[1]	Elizabeth	NPAssn	237	5,793	32	100	R	12	10	No	Req	22	50	July
St. Elizabeth Hospital[1]	Elizabeth	Church	270	5,541	47	40	R	12	6	No	Req	19	100	July
Englewood Hospital[1-3]	Englewood	NPAssn	238	5,915	22	...	R	12	9	No	Req	29	50	July
Hackensack Hospital +[1]	Hackensack	NPAssn	300	10,387	33	20	R	12	10	No	Req	18	50	July
St. Mary's Hospital[1]	Hoboken	Church	450	7,059	71	5	R	12	11	No	Req	21	75	July
Christ Hospital[1-3]	Jersey City	Church	257	6,157	30	100	R	12	10	No	Req	21	50	July
Jersey City Hospital +[1-3]	Jersey City	City	1,500	2,474	80	100	R	12	89	(167)	Req	28	25	Varies
St. Francis Hospital	Jersey City	Church	230	3,798	20	30	R	18	7	(168)	Req	17	65	JanJune
Monmouth Memorial Hospital +[1-3]	Long Branch	NPAssn	304	7,023	39	61	R	12	8	No	Req	44	100	July
Mountainside Hospital +[1-3]	Montclair	NPAssn	368	6,761	20	50	R	12	12	No	Req	40	38	July
All Souls Hospital	Morristown	Church	159	3,484	14	85	R	12	3	No	Req	27	...	July
Morristown Memorial Hospital[1]	Morristown	NPAssn	164	3,659	34	50	R	12	3	No	Req	31	110	July
Burlington County Hospital +[1]	Mount Holly	NPAssn	139	3,031	76	100	R	12	4	No	Req	56	50	July
[illegible]	Neptune	NPAssn	193	5,711	35	95	R	12	6	No	Req	44	50	July
[illegible] for Women and [illegible]	Newark	Church	270	7,264	25	20	R	12	6	No	Req	57	90.20	July
[illegible]	Newark	NPAssn	142	2,978	45	...	R	12	3	No	Req	18	50	Varies
[illegible]	Newark	NPAssn	441	11,129	20	100	R	12	12	No	Req	36	25	July
[illegible]	Newark	City	740	12,014	100	...	R	24	24	No	None	23	30	July
[illegible]	Newark	Church	146	3,590	10	...	R	12	2	No	Req	...	100	July
[illegible]	Newark	Church	420	11,509	28	100	R	12	8	No	Req	32	75	July
[illegible]	New Brunswick	Church	249	6,404	11	...	R	12	4	No	Req	18	100	July
[illegible]	Orange	NPAssn	475	9,181	21	...	R	12	8	No	Req	33	35	July
[illegible]	Orange	Church	166	3,721	...	...	R	12	3	No	Req	28	75	July
[illegible]	Passaic	NPAssn	302	6,739	...	50	R	12	8	No	Req	18	100	July
[illegible]	Passaic	Church	240	6,581	25	35	R	12	4	No	Req	17	50	July
[illegible] Hospital	Paterson	NPAssn	145	3,904	38	10	R	12	5	No	Req	28	50	JulyOct
[illegible]	Paterson	NPAssn	456	9,315	23	...	R	12	8	No	Req	40	60	July
[illegible]	Paterson	Church	422	9,908	47	20	R	12	10	No	Req	25	75	July
[illegible]	Perth Amboy	NPAssn	250	6,421	...	...	R	12	5	No	None	38	75	July
[illegible]	Plainfield	NPAssn	330	8,731	15	100	R	12	8	No	Req	24	50	July

Abbreviations and other references will be found on pages 40 and 41.

Name of Hospital	Location	Control	Capacity	Total Patients Admitted	% Service Cases	% Private Patients Assigned to Interns	Type of Internship	Length of Service in Months	Internships	Affiliated Service	Outpatient Service	Autopsy Percentage	Stipend per Month	Service Commences
NEW JERSEY—Continued														
Holy Name Hospital	Teaneck	Church	235	4,689	17	75	R	12	8	No	Req	38	75	July
Mercer Hospital[1]	Trenton	NPAssn	287	7,588	22	78	R	12	8	No	None	38	85	July
St. Francis Hospital [*3]	Trenton	Church	335	10,752	...	100	R	12	8	No	Req	16	75	July
William McKinley Memorial Hospital	Trenton	NPAssn	138	3,808	22	85	R	12	4	No.	Req	25	100	July
North Hudson Hospital[1-3]	Weehawken	NPAssn	191	3,516	50	100	R	12	7	(167)	Req	22	100	July
NEW YORK														
Albany Hospital [*1-3] X45	Albany	NPAssn	571	14,832	161	...	S	12	23	No	Req	61	No	July
Memorial Hospital[1]	Albany	NPAssn	157	3,861	12	100	R	12	5	No	Req	37	125	July
St. Peter's Hospital	Albany	Church	159	4,559	6	.	R	12	5	(169)	Req	24	100	July
Auburn City Hospital	Auburn	NPAssn	249	6,758	20	40	R	12	6	No	None	37	100	July
Binghamton City Hospital [*1-3]	Binghamton	City	500	10,831	22	80	R	12	10	No	Req	45	50	July
Beth-El Hospital [*1]	Brooklyn	NPAssn	332	8,423	47	80	R-S	24	14	No	Req	39	50	July
Brooklyn Hospital [*1] X46	Brooklyn	NPAssn	374	8,013	51	40	R	12	9	No	Req	41	No	July
Bushwick Hospital	Brooklyn	NPAssn	150	3,966	23	100	R	12	6	No	Req	21	75	July
Coney Island Hospital [*1-3]	Brooklyn	City	300	6,362	100	..	R	12	16	No	Req	29	45	July
Cumberland Hospital [*1-3]	Brooklyn	City	400	6,300	100	...	R-S	12	21	No	Req	49	45	July
Greenpoint Hospital [*1-3] x46	Brooklyn	City	300	6,674	120	...	R	12	12	No	Req	26	45	July
Maimonides Hospital [*1-3] x46														
Beth Moses Div.	Brooklyn	NPAssn	215	4,433	22	100	R	12	14	No	None	20	75	JanJuly
Israel Zion Div.	Brooklyn	NPAssn	507	11,895	14	75	R	12	16	No	Req	28	35	July
Jewish Hospital [*1-3] X46	Brooklyn	NPAssn	660	15,314	25	...	R	12	40	(170)	None	45	10	July
Kings County Hospital [*1-3] X46	Brooklyn	City	2,710	61,158	100	...	R-S	24	116	No	Req	20	45	July
Long Island College Hospital [*1] X46	Brooklyn	NPAssn	438	9,967	36	.	S	12	18	(171)	Req	38	No	July
Methodist Hospital [*1] x46	Brooklyn	Church	540	9,685	39	100	R	12	10	No	Req	50	No	July
Norwegian Lutheran Deaconesses' Home and Hospital [*]	Brooklyn	Church	263	5,280	45	...	R	12	4	No	Req	15	50	July
St. Catherine's Hospital [*]	Brooklyn	Church	344	7,806	24	90	R	24	10	No	Req	21	35	July
St. John's Hospital [*1]	Brooklyn	Church	261	4,600	46	100	R	12	9	No	Req	43	70	July
St. Mary's Hospital [*]	Brooklyn	Church	320	5,787	28	45	R	24	16	No	Req	32	30	July
St. Peter's Hospital[1]	Brooklyn	Church	205	2,760	16	100	R	12	6	No	Req	23	100	July
Unity Hospital[1]	Brooklyn	NPAssn	283	6,492	.	100	R	12	12	No	Req	19	100	July
Wyckoff Heights Hospital[1]	Brooklyn	NPAssn	190	4,922	30	100	R	24	12	No	Req	25	50	July
Buffalo General Hospital [*1-3] X47	Buffalo	NPAssn	500	10,757	50	60	S	12	18	(172)	Req	46	No	July
Allied Hospitals of the Sisters of Charity	Buffalo	See Sisters of Charity Hospital												
Deaconess Hospital [*]	Buffalo	NPAssn	333	9,261	1	...	R	12	8	No	Req	35	40	July
Edward J. Meyer Memorial Hospital [*1-3] X47	Buffalo	County	890	10,523	100		R	12	24	(233)	Req	46	91.67	July
Mercy Hospital	Buffalo	Church	258	6,662	3	100	R	12	8	No	Req	20	65	June
Millard Fillmore Hospital [*] X47	Buffalo	NPAssn	444	13,201	1	100	R	12	7	(173)	Req	46	25	July
Sisters of Charity Hospital [*]	Buffalo	Church	375	10,795	2	99	R	12	14	(174)	Req	27	35	July
Mary Imogene Bassett Hospital [*1] x45, X48	Cooperstown	NPAssn	110	2,861	.	100	R	24	6	No	Req	60	50	July
Arnot-Ogden Memorial Hospital	Elmira	NPAssn	217	6,028	24	70	R	12	4	(175)	None	36	75	July
St. Joseph's Hospital[1]	Elmira	Church	291	6,288	15	50	R	12	6	No	Op	20	75	July
Ideal Hospital[1]	Endicott	City	126	2,891	1	95	R	12	3	No	None	22	100	July
Flushing Hospital[1-3]	Flushing	NPAssn	369	9,740	17	84	R	24	8	No	Req	31	100	July
Meadowbrook Hospital [*1]	Hempstead	County	274	4,941	...	100	R	12	12	No	Req	70	50	July
Jamaica Hospital [*1]	Jamaica	NPAssn	225	6,359	..	...	R	24	8	No	Req	23	75	July
Mary Immaculate Hospital [*3]	Jamaica	Church	336	8,380	45	..	R	24	14	No	None	26	45	July
Queens General Hospital [*1-3] X50	Jamaica	City	757	14,625	100		R	24	33	No	Req	45	45	July
Charles S. Wilson Memorial Hospital [*1-3]	Johnson City	NPAssn	400	9,304	...	100	R	12	12	No	Req	35	110	July
Our Lady of Victory Hospital[1]	Lackawanna	Church	216	5,090	8	100	R	12	5	No	Req	20	100	July
St. John's Long Island City Hospital [*3]	Long Island City	Church	268	6,159	38	.	R	24	16	No	Req	50	50	July
Nassau Hospital [*1]	Mineola	NPAssn	277	7,053	19	75	R	12	6	No	None	20	50	July
Mount Vernon Hospital [*1]	Mount Vernon	NPAssn	274	7,274	18	20	R	12	6	No	Req	75	75	July
St. Luke's Hospital[1]	Newburgh	NPAssn	227	5,762	...	...	R	12	6	No	Req	22	75	July
New Rochelle Hospital [*1]	New Rochelle	NPAssn	369	8,887	..	...	R	12	12	No	Req	28	50	July
Bellevue Hospital [*] X48-51 x49	New York	City	3,132	59,511	100	(Apply to divisions listed below)								
Division I—Columbia University [*1]			226	5,225	100	...	M-S	12	16	No	Req	35	45	July
Division II—Cornell University [*1]			205	5,498	100	...	M-S	12	29	No	Req	35	45	July
Division III—New York University [*1]			374	11,172	100	...	M-S	12	75	No	Req	35	45	July
Division IV—New York University [*1-3]			207	4,846	100	...	M-S	12	24	No	Req	35	45	July
Beth David Hospital	New York	NPAssn	187	4,607	.	100	R	24	15	No	Req	31	50	JanJuly
Beth Israel Hospital [*1-3] x51	New York	NPAssn	406	8,829	32	100	R	12	12	No	None	43	25	July
Bronx Hospital [*1-3]	New York	NPAssn	392	9,267	26	100	R	12	8	No	Req	27	35	July
Columbus Hospital[3]	New York	Church	300	5,844	...	100	R	18	8	No	None	28	No	Varies
Flower and Fifth Avenue Hospitals [*1-3] X50	New York	NPAssn	419	11,634	31	100	S	12	17	No	Req	31	No	July
Fordham Hospital [*1-3]	New York	City	505	12,718	100	...	R	12	20	No	Req	24	45	July
French Hospital [*1]	New York	NPAssn	313	6,311	35	98	R	24	15	No	Req	42	20	July
Goldwater Memorial Hospital [*1-3] X48, x51	New York	City	1,600	1,372	100	...	M	12	14	No	Req	49	45	July
Gouverneur Hospital [*1-3]	New York	City	220	3,833	100	...	R	12	6	(176)	Req	15	45	July
Harlem Hospital [*1-3]	New York	City	697	20,768	100	...	R	12	47	No	Req	29	45	July
Hospital for Joint Diseases [*1-3]	New York	NPAssn	362	5,580	35	100	R	24	12	(177)	Req	27	25	JanJuly
Jewish Memorial Hospital [*3]	New York	NPAssn	229	5,733	39	100	R	12	10	No	None	41	50	July
Knickerbocker Hospital [*1]	New York	NPAssn	180	4,044	60	90	M	12	8	No	Req	62	50	July
Lebanon Hospital[1]	New York	NPAssn	232	5,435	3	100	R	12	7	No	None	17	25	July
Lenox Hill Hospital [*1-3] x51	New York	NPAssn	620	12,649	50	100	R	24	24	No	Req	47	No	July
Lincoln Hospital [*1-3]	New York	City	469	12,770	100	...	R	24	24	No	Req	28	45	July
Metropolitan Hospital [*1-3] X50	New York	City	1,100	10,724	100	...	R	12	34	No	Req	25	45	July
Misericordia Hospital	New York	Church	236	5,237	23	...	R	12	8	No	Req	27	50	July
Montefiore Hospital for Chronic Diseases [*1-3] X48	New York	NPAssn	573	2,836	65	100	M	12	12	No	Req	50	25	July
Morrisania City Hospital [*3] X48	New York	City	511	12,326	100	..	R	12	24	No	Req	23	45	July
Mother Cabrini Memorial Hospital	New York	Church	205	3,612	50	50	R	12	6	No	Req	19	50	July
Mount Sinai Hospital [*1-3] x48	New York	NPAssn	805	16,171	57	85	R	12	22	No	None	59	25	July
New York City Hospital [*1-3] X50	New York	City	880	10,167	100	...	R	24	24	No	Req	47	45	July
New York Hospital [*1-3] X49	New York	NPAssn	1,138	20,172	...	...	S	12	43	No	Req	66	No	July
New York Infirmary [*2-3]	New York	NPAssn	161	2,899	42	100	R	12	8	No	Req	75	30	Varies
New York Polyclinic Medical School and Hospital [*3]	New York	NPAssn	411	9,301	...	100	R	12	8	No	Req	27	No	July
New York Post-Graduate Medical School and Hospital [*1-3]	New York	NPAssn	460	9,130	...	100	S	12	10	No	Req	39	No	July
Presbyterian Hospital [*1-3] X48	New York	NPAssn	1,563	29,670	59	...	M-S	18	23	No	Req	16	No	JanJuly
Roosevelt Hospital [*1-3] X48	New York	NPAssn	375	8,703	...	100	S	12	12	No	Req	36	No	July
St. Clare's Hospital [*1-3]	New York	Church	511	9,089	33	80	R	12	15	No	Req	59	10	July
St. Francis Hospital	New York	Church	409	7,860	40	100	R	12	8	No	None	15	25	JanJuly
St. Luke's Hospital [*3] X48	New York	NPAssn	520	9,086	57	100	M	12	9	No	Req	41	No	July
St. Vincent's Hospital [*1] x51	New York	Church	644	13,116	52	49	R	12	21	No	Req	46	No	July
Sydenham Hospital [*1]	New York	NPAssn	251	5,614	..	100	R	12	12	No	Req	36	50	July
United Hospital[1]	Port Chester	NPAssn	214	5,839	30	90	R	12	6	No	Req	22	100	July
Vassar Brothers Hospital	Poughkeepsie	NPAssn	257	6,343	30	...	R	12	5	No	Req	26	100	July
Genesee Hospital [*1] x52	Rochester	NPAssn	262	8,632	15	100	R	12	10	No	Req	59	25	July
Highland Hospital [*1]	Rochester	NPAssn	260	6,635	10	75	R	12	8	No	Req	48	25	July

Abbreviations and other references will be found on pages 40 and 41.

Name of Hospital	Location	Control	Capacity	Total Patients Admitted	% Service Cases	% Private Patients Assigned to Interns	Type of Internship	Length of Service in Months	Internships	Affiliated Service	Outpatient Service	Autopsy Percentage	Stipend per Month	Service Commences
NEW YORK—Continued														
Rochester General Hospital +[1]	Rochester	NPAssn	387	12,283	25	80	R	12	18	(178)	Req	75	50	July
St. Mary's Hospital +[1]	Rochester	Church	390	12,472	14	100	R	12	12	No	Req	52	40	July
Strong Memorial-Rochester Municipal Hospitals +[1-3] X52	Rochester	NPAssn	715	17,093	53	100	R	12	39	No	Req	72	15	July
Ellis Hospital +[1] X45	Schenectady	NPAssn	485	12,432	5	100	R	12	8	No	Req	27	60	July
St. Vincent's Hospital +	Staten Island	Church	246	6,517	39	100	R	24	8	No	Req	24	100	July
Staten Island Hospital	Staten Island	NPAssn	279	5,985	33	...	R	24	8	No	Req	21	100	July
x53	Syracuse	NPAssn	250	7,502	30	50	R	12	6	No	None	27	25	July
	Syracuse	NPAssn	170	4,642	10	...	R	12	4	No	Req	31	25	July
erd +[1] X53	Syracuse	NPAssn	196	4,458	39	99	R	12	7	(179)	None	53	No	July
+ X53	Syracuse	NPAssn	337	11,217	39	80	R	12	11	(179)	None	35	No	July
	Troy	NPAssn	212	4,307	...	100	R	12	4	No	Req	37	100	Varies
Troy Hospital[1]	Troy	Church	272	5,725	10	100	R	12	6	No	Req	31	90	July
Grasslands Hospital +[1-3]	Valhalla	County	815	4,470	100	...	R	12	20	No	Req	58	25	July
St. Agnes Hospital	White Plains	Church	177	3,594	35	100	R	12	4	No	Req	29	100	July
White Plains Hospital +[1]	White Plains	NPAssn	210	6,126	18	100	R	12	5	No	Req	49	50	July
St. John's Riverside Hospital	Yonkers	NPAssn	220	5,809	...	...	R	12	6	No	Req	35	100	JulyOct.
St. Joseph's Hospital[1]	Yonkers	Church	193	4,111	15	100	R	12	5	No	Req	24	75	JanJune
Yonkers General Hospital[1]	Yonkers	NPAssn	177	5,587	17	30	R	12	5	No	Req	17	100	July
NORTH CAROLINA														
Charlotte Memorial Hospital +[1-3]	Charlotte	NPAssn	403	10,101	27	...	R	12	9	No	Req	50	40	July
Duke Hospital +[1-3] X54	*Durham*	*NPAssn*	*604*	*13,571*	*52*	*100*	*S*	*12*	*41*	*(180)*	*Req*	*59*	*No*	*July*
Lincoln Hospital[1]	Durham	NPAssn	122	2,848	40	90	R	12	5	No	Req	27	25	July
Watts Hospital +	Durham	NPAssn	225	9,889	7	100	R-S	12	14	No	Req	41	25	July
Rex Hospital +[1]	Raleigh	NPAssn	334	10,966	10	95	R	12	10	No	Req	28	105	July
St. Agnes Hospital[1]	Raleigh	Church	134	2,531	25	100	R	12	4	No	Req	...	25	July
James Walker Memorial Hospital +[1]	Wilmington	NPAssn	350	8,827	10	100	R	12	6	No	Req	19	50	July
City Memorial Hospital +[1-3]	Winston-Salem	City	223	6,611	7	100	R	12	9	No	Req	34	25	July
Kate Bitting Reynolds Memorial Hospital[1-3]	Winston-Salem	City	224	5,369	35	100	R	12	6	No	Req	22	25	July
North Carolina Baptist Hospital +[1-3] X55	Winston-Salem	Church	310	7,321	35	100	S	12	22	(181)	Req	56	No	November
NORTH DAKOTA														
St. John's Hospital	Fargo	Church	215	6,175	...	...	R	12	2	No	Req	28	50	July
St. Luke's Hospital +	Fargo	Church	147	6,068	...	...	R	12	4	No	Req	41	50	July
Trinity Hospital +	Minot	Church	220	6,252	...	...	R	12	2	No	None	67	...	Varies
OHIO														
City Hospital +	Akron	NPAssn	489	15,712	7	100	R	12	16	(182)	Req	47	30	July
Peoples Hospital +[1]	Akron	NPAssn	260	11,970	15	100	R	12	6	(182)	Req	36	50	July
St. Thomas Hospital +	Akron	Church	235	8,871	3	100	R	12	8	(183)	Req	32	75	July
Aultman Hospital +[1]	Canton	NPAssn	365	11,303	5	95	R	12	10	No	Req	57	50	July
Mercy Hospital +	Canton	Church	272	8,315	...	..	R	12	6	No	None	32	50	July
Christ Hospital +	Cincinnati	Church	439	10,701	15	95	R	12	14	(184)	Req	40	30	July
Cincinnati General Hospital +[1-3] X56	Cincinnati	City	915	14,757	100	...	R	12	40	(185)	Req	47	No	July
Deaconess Hospital +[1]	Cincinnati	Church	198	4,968	15	100	R	12	5	(186)	Req	23	75	July
Good Samaritan Hospital +	Cincinnati	Church	628	15,632	30	95	R	12	18	No	Req	38	60	July
Jewish Hospital +[1]	Cincinnati	NPAssn	300	9,233	3	100	R	12	9	(187)	Op	52	40	July
St. Mary's Hospital +	Cincinnati	Church	230	5,265	35	28	R	12	8	No	Req	26	75	July
City Hospital +[1-3] X57	Cleveland	City	1,135	14,470	100	...	R	12	36	No	Req	54	40	July
Evangelical Deaconess Hospital[1]	Cleveland	Church	164	6,097	2	65	R	12	4	No	None	18	75	July
Fairview Park Hospital +[1]	Cleveland	Church	201	7,574	3	100	R	12	6	No	Req	44	75	July
Glenville Hospital	Cleveland	NPAssn	135	5,334	...	...	R	12	4	.....	None	23	75	July
Lutheran Hospital +[1]	Cleveland	Church	160	5,278	2	98	R	12	4	No	None	44	75	July
Mount Sinai Hospital +[1-3]	Cleveland	NPAssn	262	9,726	12	100	R	12	12	No	Req	45	50	July
St. Alexis Hospital +	Cleveland	Church	255	10,270	14	100	R	12	8	No	Req	35	50	July
St. John's Hospital +	Cleveland	Church	285	8,973	14	100	R	12	8	No	None	47	50	July
St. Luke's Hospital +[1-3]	Cleveland	Church	402	12,713	13	72	R	12	20	No	Req	49	30	June
St. Vincent Charity Hospital +	Cleveland	Church	290	8,338	18	100	R	12	12	(188)	Req	41	50	July
University Hospitals +[1-3] X57	Cleveland	NPAssn	817	20,121	34	100	R	24	30	No	Req	75	Var'os	Varies
Grant Hospital +	Columbus	NPAssn	327	10,020	5	100	R	12	8	No	None	34	75	July
Mount Carmel Hospital +[1]	Columbus	Church	315	10,172	4	100	R	12	10	No	Req	32	50	July
St. Francis Hospital + X58	Columbus	State	161	3,970	...	100	R	12	9	No	Req	29	No	July
Starling-Loving University Hospital +[1] X58	*Columbus*	*State*	*314*	*8,360*	*52*	*100*	*R*	*24*	*16*	*(190)*	*None*	*69*	*9*	*July*
White Cross Hospital +	Columbus	Church	358	10,769	5	85	R	12	8	No	Req	46	50	July
Good Samaritan Hospital	Dayton	Church	381	12,280	4	...	R	12	6	No	None	..	50	July
Miami Valley Hospital +[3]	Dayton	NPAssn	480	13,236	...	...	R	12	12	No	Req	42	50	July
	Dayton	Church	375	11,129	10	...	R	12	6	No	Req	22	100	July
	East Cleveland	NPAssn	433	10,655	2	100	R	12	15	No	Req	39	50	July
	Hamilton	Church	325	8,234	25	100	R	12	6	No	Req	36	50	July
	Lakewood	City	157	5,411	1	100	R	12	4	No	Req	48	50	July
	Lima	NPAssn	189	6,149	5	75	R	12	4	No	None	28	90	July
	Lima	Church	300	6,548	...	100	R	12	6	No	Req	22	50	July
Springfield City Hospital	Springfield	City	329	7,103	3	100	R	12	6	No	Req	36	100	July
Maumee Valley Hospital +	Toledo	County	325	3,728	90	100	R	12	8	No	Req	43	75	July
Mercy Hospital +[1]	Toledo	Church	340	11,051	25	100	R	12	8	(191)	Req	49	75	July
St. Vincent's Hospital +[1]	Toledo	Church	360	10,539	...	...	R	12	12	No	Req	48	75	July
Toledo Hospital +	Toledo	NPAssn	320	9,432	3	100	R	12	10	No	Req	55	75	July
St. Elizabeth Hospital +	Youngstown	Church	300	14,946	3	100	R	12	10	No	Req	23	100	July
Youngstown Hospital +[3]	Youngstown	NPAssn	632	18,968	4	100	R	24	15	No	Req	44	25	July
OKLAHOMA														
St. Anthony Hospital + x59	Oklahoma City	Church	450	12,801	15	86	R	12	10	No	Req	32	50	July
University Hospitals +[1-3] X59	Oklahoma City	State	536	5,914	90	100	R	12	17	No	None	43	25	July
Wesley Hospital + x59	Oklahoma City	Part	232	6,721	10	80	R	12	6	No	Req	29	50	July
Hillcrest Memorial Hospital +[1]	Tulsa	NPAssn	393	12,637	...	100	R	12	10	No	None	31	50	July
St. John's Hospital +[1]	Tulsa	Church	331	13,192	...	...	R	12	10	No	Req	30	75	July
OREGON														
Emanuel Hospital +[1] x60	Portland	Church	425	13,910	...	100	R	12	12	(192)	Req	84	50	July
Good Samaritan Hospital + x60	Portland	Church	505	13,414	5	51	R	12	16	No	None	50	50	July
Portland Sanitarium and Hospital +	Portland	Church	172	8,072	...	100	R	12	5	No	None	45	100	July
Providence Hospital +[1]	Portland	Church	237	7,310	...	100	R	12	8	(193)	None	49	50	July
University of Oregon Medical School Hospitals and Clinics +[1-3] X60	Portland	State	448	6,437	92	100	R	12	16	No	Op	63	50	July

Abbreviations and other references will be found on pages 40 and 41.

Name of Hospital	Location	Control	Capacity	Total Patients Admitted	% Service Cases	% Private Patients Assigned to Interns	Type of Internship	Length of Service in Months	Internships	Affiliated Service	Outpatient Service	Autopsy Percentage	Stipend per Month	Service Commences
PENNSYLVANIA														
Abington Memorial Hospital *[2]	Abington	NPAssn	360	7,997	31	98	R	21	12	No	Req	53	No	July
Allentown Hospital *[1-3]	Allentown	NPAssn	397	11,355	40	60	R	12	10	No	Req	39	75	July
Sacred Heart Hospital *[1]	Allentown	Church	335	7,310	...	90	R	12	8	No	Req	30	75	July
Altoona Hospital[1]	Altoona	NPAssn	221	6,125	...	100	R	12	5	No	Req	29	100	July
Mercy Hospital[1]	Altoona	NPAssn	219	5,555	49	...	R	12	5	No	None	...	110	July
St. Luke's Hospital *[1-3]	Bethlehem	NPAssn	380	8,561	20	50	R	18	12	No	Req	36	30	July
Braddock General Hospital	Braddock	NPAssn	175	4,683	15	...	R	12	5	No	Req	...	50	July
Bryn Mawr Hospital *[2]	Bryn Mawr	NPAssn	333	7,667	18	100	R	12	10	No	Req	53	No	July
Chester Hospital[1-3]	Chester	NPAssn	310	7,323	18	12	R	12	8	No	Req	33	75	July
George F. Geisinger Memorial Hospital *[1-3]	Danville	NPAssn	230	7,596	...	100	R	12	10	No	Req	51	20	July
Fitzgerald-Mercy Hospital * x64	Darby	Church	261	6,650	16	100	R	12	7	No	Req	55	50	July
Easton Hospital[1-3]	Easton	NPAssn	210	5,819	20	10	R	12	6	No	Req	41	100	July
Hamot Hospital *[1]	Erie	NPAssn	332	9,316	18	...	R	12	8	No	Req	40	50	July
St. Vincent's Hospital *	Erie	NPAssn	352	9,970	13	...	R	12	8	No	Req	27	75	July
Westmoreland Hospital[1]	Greensburg	NPAssn	230	7,167	8	...	R	12	6	No	None	32	100	July
Harrisburg Hospital *[1]	Harrisburg	NPAssn	368	9,916	25	75	R	12	10	No	Req	35	83.33	July
Harrisburg Polyclinic Hospital *	Harrisburg	NPAssn	249	6,632	11	97	R	12	5	No	Req	22	125	July
Conemaugh Valley Memorial Hospital *[1]	Johnstown	NPAssn	415	11,549	18	100	R	12	10	No	Req	...	75	July
Nesbitt Memorial Hospital[1]	Kingston	NPAssn	240	6,289	35	100	R	12	3	No	Req	20	50	July
Lancaster General Hospital[1]	Lancaster	NPAssn	301	8,165	19	100	R	12	8	No	Req	48	75	July
St. Joseph's Hospital *	Lancaster	Church	272	6,793	40	100	R	12	6	No	Req	52	100	July
McKeesport Hospital[1]	McKeesport	NPAssn	325	8,157	11	100	R	12	7	No	Req	15	100	July
Montgomery Hospital[1]	Norristown	NPAssn	164	4,918	...	33	R	12	8	No	Req	28	100	July
Chestnut Hill Hospital[1]	Philadelphia	NPAssn	112	3,392	...	...	R	12	4	No	Req	38	50	July
Episcopal Hospital *[1-3] x62-63-64	Philadelphia	Church	552	10,116	...	.	R	12	16	No	Req	32	No	July
Frankford Hospital *[1]	Philadelphia	NPAssn	192	4,218	...	100	R	12	7	No	Req	56	75	July
Germantown Dispensary and Hospital *[3] x62	Philadelphia	NPAssn	410	7,462	66	100	R	12	12	No	Req	51	No	July
Graduate Hospital of the University of Pennsylvania *[3]	Philadelphia	NPAssn	461	7,116	100	...	R	12	16	(195)	Req	42	No	July
Hahnemann Hospital *[1] X61	Philadelphia	NPAssn	692	11,910	49	...	R	12	24	No	Req	61	No	July
Hospital of the University of Pennsylvania *[1-3] X64	Philadelphia	NPAssn	762	17,719	...	100	R	12	22	No	None	79	No	July
Hospital of the Woman's Medical College *[2] X65	Philadelphia	NPAssn	206	4,885	53	100	R	12	6	No	Req	40	No	July
Jefferson Medical College Hospital *[3] X62	Philadelphia	NPAssn	732	10,139	37	100	R	24	28	No	Req	59	No	July
Jewish Hospital *[1-3] X63	Philadelphia	NPAssn	431	9,203	32	100	R	12	18	(196)	Req	60	No	July
Lankenau Hospital *	Philadelphia	NPAssn	298	6,162	..	100	R	12	10	(197)	Req	53	No	July
Memorial Hospital[1-3]	Philadelphia	NPAssn	133	3,235	33	90	R	12	3	No	Req	25	100	July
Mercy Hospital[1]	Philadelphia	NPAssn	120	2,761	..	100	R	12	5	No	Req	17	15	July
Methodist Hospital x62	Philadelphia	Church	216	5,136	.	100	R	12	8	No	Op	36	24	July
Misericordia Hospital[1-3]	Philadelphia	Church	250	6,366	29	..	R	12	7	No	Req	53	No	July
Mount Sinai Hospital *[1-3] X61 x62	Philadelphia	NPAssn	317	6,209	56	25	R	12	14	No	Req	72	No	July
Nazareth Hospital *[1]	Philadelphia	Church	195	5,673	26	100	R	12	5	No	None	26	75	July
Northeastern Hospital[1-3]	Philadelphia	NPAssn	102	3,256	...	...	R	12	4	No	Req	...	100	July
Pennsylvania Hospital *[3] X62-64	Philadelphia	NPAssn	512	10,201	...	...	R	12	18	(198)	Req	59	No	July
Philadelphia General Hospital *[1-3] X61-62-63-64-65	Philadelphia	City	2,560	22,053	100	...	R	12	80	(196)	Req	58	No	July
Presbyterian Hospital *[3] x64	Philadelphia	Church	409	7,116	..	100	R	21	12	No	Req	57	No	July
St. Agnes Hospital x62	Philadelphia	Church	426	6,268	20	100	R	12	6	No	Req	50	75	July
St. Joseph's Hospital[1] x62	Philadelphia	Church	235	4,807	10	..	R	12	8	No	Req	44	100	July
St. Luke's and Children's Medical Center *[1] x61-62	Philadelphia	NPAssn	367	9,001	63	85	R	12	9	No	Req	27	75	July
St. Mary's Hospital	Philadelphia	Church	280	6,387	...	100	R	12	8	No	Req	32	No	July
Temple University Hospital *[1] X63	Philadelphia	NPAssn	602	13,664	...	100	R	12	24	(196)	Req	49	No	July
Woman's Hospital *[2] X65	Philadelphia	NPAssn	185	4,421	40	100	R	12	6	No	Req	42		July
[illegible]	Philadelphia	NPAssn	218	4,105	41	100	R	12	4	No	Req	37	135	JanJuly
[illegible]	Pittsburgh	NPAssn	608	11,560	45	100	R	12	18	No	Req	23	No	July
[illegible]	Pittsburgh	Church	735	14,695	35	100	R	12	24	No	Req	34	No	July
Montefiore Hospital *	Pittsburgh	NPAssn	280	7,201	27	100	R	12	11	(199)	Req	41	25	July
Pittsburgh Hospital *[1]	Pittsburgh	NPAssn	225	5,639	90	100	R	12	6	No	Req	24	50	July
Presbyterian Hospital *[1] X66	Pittsburgh	NPAssn	235	5,026	14	100	R	12	10	(200)	Req	33	No	July
St. Francis Hospital *[3] X66	Pittsburgh	NPAssn	710	14,850	...	100	R	12	20	No	Req	21	No	July
St. John's General Hospital	Pittsburgh	NPAssn	250	7,009	25	.	R	12	6	No	None	23	None	July
St. Joseph's Hospital and Dispensary	Pittsburgh	Church	200	6,211	...	100	R	12	8	No	Req	40	75	July
St. Margaret Memorial Hospital *[1]	Pittsburgh	Church	150	3,036	...	100	R	12	4	No	Req	28	75	July
Shadyside Hospital[1]	Pittsburgh	NPAssn	310	7,932	11	20	R	12	10	(201)	Req	21	75	July
South Side Hospital[1]	Pittsburgh	NPAssn	239	6,001	...	100	R	12	7	No	Req	16	75	July
Western Pennsylvania Hospital *[1-3]	Pittsburgh	NPAssn	600	12,138	8	...	R	12	18	No	Req	19	No	July
Pottsville Hospital[1]	Pottsville	NPAssn	166	3,818	...	...	R	12	3	No	Req	17	120	April
Community General Hospital[1]	Reading	NPAssn	150	3,603	22	..	R	12	4	No	Req	70	150	July
Reading Hospital *[1-3]	Reading	NPAssn	357	9,125	...	100	R	12	10	No	Req	57	75	July
St. Joseph's Hospital *[3]	Reading	Church	220	6,091	15	10	R	12	6	No	Req	51	100	July
Robert Packer Hospital *	Sayre	NPAssn	325	10,560	...	75	R	12	10	No	Req	49	No	JanJuly
Moses Taylor Hospital[1]	Scranton	NPAssn	120	2,295	..	100	R	12	3	(202)	Req	17	100	July
Scranton State Hospital[1]	Scranton	State	310	5,839	44	30	R	12	10	No	Req	24	110	July
Sewickley Valley Hospital[1]	Sewickley	NPAssn	185	5,307	3	100	R	12	4	No	Req	38	100	Varies
Uniontown Hospital *[1]	Uniontown	NPAssn	250	7,114	27	83	R	12	6	No	Req	40	100	July
Washington Hospital *	Washington	NPAssn	234	5,383	...	100	R	12	7	No	Req	22	100	July
Chester County Hospital *[3]	West Chester	NPAssn	179	7,000	45	55	R	12	6	No	Req	18	100	July
Mercy Hospital *[1-3]	Wilkes-Barre	Church	230	5,752	33	90	R	12	6	No	Req	30	50	July
Wilkes-Barre General Hospital *[1]	Wilkes-Barre	NPAssn	417	9,677	33	32	R	12	10	No	Req	24	50	July
Columbia Hospital *[1]	Wilkinsburg	Church	232	5,655	..	100	R	12	5	No	Req	20	50	July
Williamsport Hospital *[1]	Williamsport	NPAssn	304	8,643	24	76	R	12	8	No	None	31	100	July
Windber Hospital[1]	Windber	NPAssn	117	3,367	...	100	R	12	4	No	Req	25	75	July
York Hospital *[3]	York	NPAssn	248	7,525	...	...	R	12	8	No	Req	31	100	July
RHODE ISLAND														
Memorial Hospital	Pawtucket	NPAssn	202	7,051	31	67	R	12	6	No	Req	42	50	July
Roger Williams General Hospital	Providence	NPAssn	196	5,502	10	80	R	12	6	No	Req	20	100	July
Rhode Island Hospital *[3]	Providence	NPAssn	569	13,702	45	...	R	24	24	No	Req	61	No	July
St. Joseph's Hospital[3]	Providence	Church	360	7,779	35	60	R	24	7	(203)	Req	32	50	July
SOUTH CAROLINA														
Roper Hospital *[1-3] X67	Charleston	NPAssn	420	10,984	51	100	R	12	20	No	Req	41	10	July
Columbia Hospital *[1]	Columbia	County	497	11,650	25	...	R	12	14	No	None	31	50	July
McLeod Infirmary	Florence	NPAssn	231	6,369	...	...	R	12	6	No	None	..	50	July
Greenville General Hospital *	Greenville	City	362	11,300	20	100	R	12	9	No	Req	29	50	July
SOUTH DAKOTA														
McKennan Hospital	Sioux Falls	Church	214	6,861	...	100	R	12	4	No	None	60	75	July
Sioux Valley Hospital	Sioux Falls	NPAssn	220	6,845	...	...	R	12	8	No	None	31	50	July

Abbreviations and other references will be found on pages 40 and 41.

Name of Hospital	Location	Control	Capacity	Total Patients Admitted	% Service Cases	% Private Patients Assigned to Interns	Type of Internship*	Length of Service in Months	Internships	Affiliated Service†*	Outpatient Service	Autopsy Percentage	Stipend per Month	Service Commences
TENNESSEE														
Baroness Erlanger Hospital +[1-3]	Chattanooga	CyCo	485	13,326	30	100	R	12	14	(204)	Req	28	60	July
Knoxville General Hospital +[3]	Knoxville	City	325	8,976	51	100	R	12	9	No	Req	20	40	Varies
Baptist Memorial Hospital +	Memphis	Church	570	18,146	28	75	R	12	16	No	Req	19	50	July
John Gaston Hospital +[3] **X68**	Memphis	City	550	17,612	95	100	R	12	24	No	Req	63	35	Varies
Methodist Hospital +	Memphis	Church	300	12,252	10	25	R	12	10	No	Req	44	50	Varies
St. Joseph Hospital +[1]	Memphis	Church	360	11,269	10	100	R	12	8	No	Req	41	50	Varies
George W. Hubbard Hospital +[3] **X69**	Nashville	NPAssn	181	2,286	89	99	R	12	8	No	Req	29	15	July
Nashville General Hospital + **x70**	Nashville	City	295	7,319	75	100	R	12	14	No	Req	37	25	July
Protestant Hospital	Nashville	NPAssn	132	6,336	2	100	M	12	4	No	None	18	90	July
St. Thomas Hospital +	Nashville	Church	248	9,103	20	100	S	12	12	(205)	None	40	30	July
Vanderbilt University Hospital +[1] **X70**	Nashville	NPAssn	410	9,206	..	...	S	12	23	(135)	None	59	No	July
Oak Ridge Hospital[1]	Oak Ridge	NPAssn	382	9,501	2	100	R	12	6	No	Req	62	100	July
TEXAS														
Brackenridge Hospital[1]	Austin	City	272	6,888	32	100	R	12	8	No	Req	16	60	July
Baylor University Hospital +[1] **x71**	Dallas	Church	500	16,450	10	100	R-S	12	27	No	Req	30	37.50	July
Methodist Hospital + **x71**	Dallas	Church	250	10,262	..	100	R	12	6	No	Req	23	50	July
Parkland Hospital +[1-3] **X71**	Dallas	CyCo	422	8,097	80	95	R	12	14	No	Req	36	10	July
St. Paul's Hospital + **x71**	Dallas	Church	350	12,667	.	100	R	12	20	No	None	24	50	July
El Paso City-County Hospital	El Paso	CyCo	211	2,438	98	..	R	12	3	No	Req	61	75	July
City-County Hospital[1]	Fort Worth	CyCo	192	5,041	95	.	R	12	6	No	Req	25	25	July
Harris Memorial Methodist Hospital +[1]	Fort Worth	Church	375	12,737	6	100	R	12	16	No	Req	55	50	July
St. Joseph's Hospital[1]	Fort Worth	Church	287	9,444	2	100	R	12	6	No	Req	20	100	July
John Sealy Hospital +[1] **X72**	Galveston	State	516	9,110	53	100	R	12	21	No	Req	62	25	July
Hermann Hospital +[1] **X73**	Houston	NPAssn	330	9,589	50	100	R	12	15	(206)	Req	55	20	July
Jefferson Davis Hospital +[1] **x72 X73**	Houston	CyCo	493	11,340	..		R	12	22	No	Req	31	25	July
Methodist Hospital +[1] **x72-73**	Houston	Church	157	5,846	5	100	R	12	4	No	Req	48	25	July
Medical and Surgical Memorial Hospital[1]	San Antonio	NPAssn	297	11,960	..	10	R	12	10	No	Req	21	100	July
Nix Memorial Hospital[1]	San Antonio	Corp.	179	6,508	.	100	R	12	3	No	None	27	100	July
Robert B. Green Memorial Hospital[1-3]	San Antonio	County	216	4,099	99	.	R	12	10	No	None	30	25	July
Santa Rosa Hospital +	San Antonio	Church	413	14,565	12	100	R	12	14	No	Req	28	75	July
Kings Daughters Hospital[1-3]	Temple	NPAssn	126	3,313	.	75	R	12	3	No	Req	19	125	MarJuly
Scott and White Hospital +[1]	Temple	Corp	220	6,789	...	100	R	12	9	(207)	Req	49	75	July
Wichita Falls Clinic Hospital +	Wichita Falls	Part	117	4,918	...	100	R	12	3	No	Req	66	150	July
UTAH														
St. Benedict's Hospital	Ogden	Church	186	5,339	...	...	R	12	5	No	None	46	No	July
Thomas D. Dee Memorial Hospital +[1] **x74**	Ogden	Church	400	11,011	...	...	R	12	6	(208)	Req	42	25	July
Dr. W. H. Groves Latter-Day Saints Hospital + **x74**	Salt Lake City	Church	476	14,054	5	50	R	12	12	No	Req	34	25	July
Holy Cross Hospital +[1] **x74**	Salt Lake City	Church	260	7,533	1	100	R	12	7	No	None	36	25	July
St. Mark's Hospital + **x74**	Salt Lake City	Church	244	6,486	5	100	R	12	6	No	Req	18	50	July
Salt Lake County General Hospital +[1] **X74**	Salt Lake City	County	251	3,551	100	...	R	12	14	No	Req	55	25	July
VERMONT														
Bishop DeGoesbriand Hospital +[1] **X75**	Burlington	Church	140	3,711	40	100	R	12	3	No	None	40	50	July
Mary Fletcher Hospital +[1-3] **X75**	Burlington	NPAssn	230	5,903	34	100	R	12	7	No	Req	58	50	July
VIRGINIA														
Alexandria Hospital +[1]	Alexandria	NPAssn	228	6,438	21	100	R	12	6	No	Req	56	50	July
University of Virginia Hospital +[1] **X76**	Charlottesville	State	557	14,021	100	..	M	12	25	(234)	Req	68	No	July
Chesapeake and Ohio Hospital +	Clifton Forge	NPAssn	175	6,166	90	100	R	12	3	No	....	63	...	July
Elizabeth Buxton Hospital	Newport News	Indiv	181	6,554	...	100	R	12	3	No	Req	44	100	July
Riverside Hospital	Newport News	NPAssn	221	4,980	...	..	R	12	4	..	....	26	...	July
De Paul Hospital +[1]	Norfolk	Church	306	9,094	10	90	R	12	6	No	Req	53	50	July
Norfolk General Hospital +	Norfolk	NPAssn	395	9,706	16	100	R	12	13	No	Req	35	50	July
Johnston-Willis Hospital +[1]	Richmond	Corp	171	5,822	...	100	R	12	5	No	Req	57	25	July
Medical College of Virginia Hospital Div. +[1-3] **X77** (Memorial, Dooley and St. Philip Hosps.)	Richmond	State	810	15,621	54	100	R	12	42	(236)	Req	43	No	July
Stuart Circle Hospital	Richmond	Corp	137	4,231	...	100	R	12	3	No	None	48	50	July
Jefferson Hospital +	Roanoke	NPAssn	180	5,172	75	100	R	12	3	(209)	Req	28	50	July
Lewis-Gale Hospital +	Roanoke	NPAssn	210	6,385	..	100	R	12	4	No	Req	30	75	July
Roanoke Hospital[1]	Roanoke	NPAssn	150	4,262	8	100	R	12	6	No	Req	35	75	July
WASHINGTON														
Columbus Hospital	Seattle	Church	244	5,834	...	100	R	12	6	(210)	None	48	50	July
[illegible] +	Seattle	NPAssn	248	7,527	...	100	R	12	6	No	None	57	50	July
King County Hospital [illegible] +[1]	Seattle	County	551	12,015	100	..	R	12	22	No	Req	47	75	July
[illegible] +	Seattle	Church	434	10,749	...	100	R	12	10	(211)	Req	43	50	July
[illegible] Hospital	Seattle	NPAssn	141	5,017	...	100	R	12	4	(212)	None	17	50	JanJuly
Swedish Hospital +	Seattle	NPAssn	374	10,398	5	95	R	12	12	(212)	Req	45	50	July
Virginia Mason Hospital +	Seattle	NPAssn	243	8,373	...	100	R	12	8	No	Req	70	50	July
Deaconess Hospital +	Spokane	Church	244	9,040	...	100	R	12	7	No	None	57	85	July
Sacred Heart Hospital +	Spokane	Church	460	12,689	5	..	R	12	12	(213)	None	..	100	July
St. Luke's Hospital +[1]	Spokane	NPAssn	291	7,486	.	100	R	12	8	(214)	Req	59	75	July
Pierce County Hospital[1]	Tacoma	County	221	3,745	100	..	R	12	8	(215)	Req	49	100	July
St. Joseph's Hospital +	Tacoma	Church	350	13,469	...	100	R	12	4	No	Req	50	100	July
Tacoma General Hospital +[1]	Tacoma	NPAssn	283	8,299	...	...	R	12	6	No	None	52	75	July
Northern Permanente Foundation +	Vancouver	NPAssn	345	4,286	75	100	R	12	6	No	Req	66	100	July
WEST VIRGINIA														
Charleston General Hospital +[1]	Charleston	NPAssn	335	9,584	50	100	R	12	10	No	Req	45	100	July
Kanawha Valley Hospital	Charleston	Corp	165	4,967	82	75	R	12	2	No	Req	39	100	July
Chesapeake and Ohio Hospital +	Huntington	NPAssn	185	3,746	...	...	R	12	4	No	Req	46	50	July
St. Mary's Hospital +[1]	Huntington	Church	244	6,521	...	...	R	12	6	No	Req	26	50	July
[illegible] Memorial Hospital	Parkersburg	City	187	4,798	25	100	R	12	4	No	.....	35	100	AprJuly
[illegible]	Parkersburg	Church	205	6,947	...	100	R	12	4	No	Req	35	100	July
[illegible]al	Wheeling	NPAssn	360	8,887	10	100	R	12	10	No	Req	21	100	July
[illegible]	Wheeling	Church	290	7,498	10	...	R	12	5	No	None	20	100	July

Abbreviations and other references will be found on pages 40 and 41.

Name of Hospital	Location	Control	Capacity	Total Patients Admitted	% Service Cases	% Private Patients Assigned to Interns	Type of Internship	Length of Service in Months	Internships	Affiliated Service	Outpatient Service	Autopsy Percentage	Stipend per Month	Service Commences
WISCONSIN														
St. Elizabeth Hospital	Appleton	Church	250	6,871	...	100	R	12	3	No	None	22	50	July
Luther Hospital[1] x78	Eau Claire	NPAssn	218	6,396	...	100	R	12	4	No	None	45	50	Varies
Mercy Hospital x78	Janesville	Church	145	3,598	...		R	12	3	No	None	19		July
St. Agnes Hospital	Fond du Lac	Church	330	8,290	...	100	R	12	4	No	None	30	50	July
La Crosse Lutheran Hospital *[1] x78	La Crosse	Church	152	5,013	...		M	12	1	No	Req	44	50	July
St. Francis Hospital[1] x78	La Crosse	Church	340	7,918	...	100	R	12	8	No	Req	48	100	Varies
Madison General Hospital *[1]	Madison	NPAssn	203	6,714	...	100	R	12	6	No	Req	47	50	July
Methodist Hospital	Madison	Church	131	4,721	..		R	12	4	No	Req	22	60	July
St. Mary's Hospital *[1]	Madison	Church	250	7,739	...	100	R	12	8	No	None	33	75	July
State of Wisconsin General Hospital *[1] X78	Madison	State	772	12,498	...	100	R	12	20	No	Req	84	No	July
Columbia Hospital *	Milwaukee	NPAssn	185	4,821	1	100	R	12	7	No	Req	59	25	July
Evangelical Deaconess Hospital *	Milwaukee	Church	167	6,677	1	99	R	12	6	No	Req	30	75	JanJuly
Milwaukee County Hospital *[1-3] X79	Milwaukee	County	983	16,335	100	..	R	12	40	(216)	Req	29		July
Milwaukee Hospital *	Milwaukee	Church	359	10,742	3		R	12	9	(217)	Req	55	30	July
Misericordia Hospital	Milwaukee	Church	140	4,768	..	100	R	12	3	No	None	28	100	July
Mount Sinai Hospital *[1]	Milwaukee	NPAssn	215	7,797	3	100	R	12	8	No	Req	41	40	July
St. Joseph Hospital *	Milwaukee	Church	435	12,579		..	R	12	11	(218)	Req	27	40	JulySept
St. Luke's Hospital *	Milwaukee	Church	130	4,889		100	R	12	4	No	None	26	50	...
St. Mary's Hospital *	Milwaukee	Church	252	7,379		100	R	12	6	No	Req	62	50	Varies
St. Michael's Hospital[1]	Milwaukee	Church	160	4,414	18		R	12	4	No	Req	33	75	July
Mercy Hospital	Oshkosh	Church	239	5,780		100	R	12	4	No	None	20	100	July
St. Mary's Hospital	Racine	Church	271	5,572	...	100	R	12	4	No	None	28	75	July
CANAL ZONE														
Gorgas Hospital *	Ancon	Fed	See U. S. Army, page 29											
HAWAII														
Kuakini Hospital	Honolulu	NPAssn	140	5,073	3		M	12	4	No	None	33	70	July
Queen's Hospital *[1-3]	Honolulu	NPAssn	424	12,278	11	100	R	12	12	(219)	Req	61	60	Varies
St. Francis Hospital[1]	Honolulu	Church	250	7,561	2	75	R	18	8	No	Req	47	75	Varies
PUERTO RICO														
Arecibo Charity District Hospital[1]	Arecibo	Govt	315	4,216	100	...	R	12	4	No	None	...	125	July
Bayamon District Hospital[1]	Bayamon	Govt	335	6,621	100	...	R	12	8	No	Req	33	75	July
Fajardo Charity District Hospital	Fajardo	Govt	324	4,655	...	...	R	15	4	No	Req	22	75	Varies
Clinica Quirurgica Dr. Pila[1]	Ponce	NPAssn	104	3,006	..	..	R	12	4	No	Req	41	125	JanJuly
Presbyterian Hospital[1]	San Juan	Church	137	2,768	50	100	R	12	4	No	Req	17	10	July

HOSPITALS APPROVED FOR INTERNSHIPS IN THE DOMINION OF CANADA

For the benefit of graduates of approved medical colleges who desire an internship in Canada, the Council on Medical Education and Hospitals of the American Medical Association has declared that hospitals which conform to the standards of the Canadian Medical Association should be regarded as giving an internship equivalent in educational value to that offered by hospitals in the United States approved for intern training by the Council. It is understood, however, that this statement applies only to hospitals that are unqualifiedly "Approved" under the Canadian plan and does not apply to that group referred to as "Commended."

The following list of hospitals, revised to April 1, 1947, has been furnished by the Canadian Medical Association.

Name of Hospital	Location
Camp Hill Hospital	Halifax, N. S.
Victoria General Hospital	Halifax, N. S.
St. John General Hospital	St. John, N. B.
Hospital du St. Sacrament	Quebec, Que.
Hospital Dieu de Quebec	Quebec, Que.
Hospital of the Infant Jesus	Quebec, Que.
Jeffrey Hale's Hospital	Quebec, Que.
Children's Memorial Hospital	Montreal, Que.
Herbert Reddy Mem. Hospital	Montreal, Que.
Homeopathic Hospital	Montreal, Que.
Hospital Notre Dame	Montreal, Que.
Hospital Ste. Jeanne d'Arc	Montreal, Que.
Hospital Ste. Justine	Montreal, Que.
Hotel Dieu de Montreal	Montreal, Que.
Hospital Ste. Luc	Montreal, Que.
Jewish General Hospital	Montreal, Que.
Montreal General Hospital	Montreal, Que.
Queen Mary Veterans Hospital	Montreal, Que.
Royal Victoria Hospital	Montreal, Que.
St. Mary's Hospital	Montreal, Que.
Ste. Anne's Hospital	Ste. Anne de Bellevue, Que.
Brantford General Hospital	Brantford, Ont.
Hamilton General Hospital	Hamilton, Ont.
St. Joseph's Hospital	Hamilton, Ont.
St. Joseph's Hospital	London, Ont.
Victoria Hospital	London, Ont.
Westminster Hospital	London, Ont.
Oshawa General Hospital	Oshawa, Ont.
Ottawa Civic Hospital	Ottawa, Ont.
Ottawa General Hospital	Ottawa, Ont.
Hotel Dieu Hospital	Kingston, Ont.
Kingston General Hospital	Kingston, Ont.
Christie Street Hospital	Toronto, Ont.
Hospital for Sick Children	Toronto, Ont.
Mount Sinai Hospital	Toronto, Ont.
St. Joseph's Hospital	Toronto, Ont.
St. Michael's Hospital	Toronto, Ont.
Toronto East General Hospital	Toronto, Ont.
Toronto General Hospital	Toronto, Ont.
Toronto Western Hospital	Toronto, Ont.
Wellesley Hospital	Toronto, Ont.
Women's College Hospital	Toronto, Ont.
Grace Hospital	Windsor, Ont.
Metropolitan Hospital	Windsor, Ont.
Hotel Dieu of St. Joseph	Windsor, Ont.
Children's Hospital	Winnipeg, Man.
Deer Lodge Hospital	Winnipeg, Man.
Misericordia Hospital	Winnipeg, Man.
Winnipeg General Hospital	Winnipeg, Man.
St. Boniface Hospital	St. Boniface, Man.
Regina Grey Nun's Hospital	Regina, Sask.
Regina General Hospital	Regina, Sask.
St. Paul's Hospital	Saskatoon, Sask.
Saskatoon City Hospital	Saskatoon, Sask.
Calgary General Hospital	Calgary, Alta.
Colonel Belcher Hospital	Calgary, Alta.
Holy Cross Hospital	Calgary, Alta.
Edmonton General Hospital	Edmonton, Alta.
Misericordia Hospital	Edmonton, Alta.
Royal Alexandra Hospital	Edmonton, Alta.
University of Alberta Hosp.	Edmonton, Alta.
St. Paul's Hospital	Vancouver, B. C.
Shaughnessy Hospital	Vancouver, B. C.
Vancouver General Hospital	Vancouver, B. C.
Royal Jubilee Hospital	Victoria, B. C.
St. Joseph's Hospital	Victoria, B. C.

ABBREVIATIONS AND NOTES

CyCo	City and County
Corp	Corporation unrestricted as to profit
M	Mixed
NPAssn	Nonprofit association
Op	Optional
Part	Partnership
Req	Required
R	Rotating
S	Straight
USPHS	United States Public Health Service.

1. Women interns admitted.
2. Women interns only.
3. Dental interns employed.
4. Salary established by government pay tables.

(a) In lieu of maintenance.
(b) Male patients only.

+ The plus sign indicates additional approval for residencies in specialties, as shown in the Council's list of Approved Residencies and Fellowships for Veteran and Civilian Physicians.

Medical School Affiliations

Footnotes 10 to 79 refer to medical schools affiliated with hospitals for undergraduate clinical clerkships.

Hospitals have been identified with symbol X when a medical school has indicated that the hospital is a major unit in the school's teaching program. Hospitals have been identified with symbol x when a medical school has indicated that the hospital is used to a limited extent in the school's teaching program.

10. Medical College of Alabama, Birmingham, Ala.
11. University of Arkansas School of Medicine, Little Rock, Ark.
12. University of California Medical School, Berkeley-San Francisco, Calif.
13. College of Medical Evangelists, Loma Linda-Los Angeles, Calif.
14. University of Southern California School of Medicine, Los Angeles, Calif.
15. Stanford University School of Medicine, Stanford University—San Francisco, Calif.
16. University of Colorado School of Medicine, Denver, Colo.
17. Yale University School of Medicine, New Haven, Conn.
18. Georgetown University School of Medicine, Washington, D. C.
19. George Washington University School of Medicine, Washington, D. C.
20. Howard University College of Medicine, Washington, D. C.
21. Emory University School of Medicine, Atlanta, Ga.
22. University of Georgia School of Medicine, Augusta, Ga.
23. Loyola University School of Medicine, Chicago, Ill.
24. Northwestern University Medical School, Chicago, Ill.
25. University of Chicago, The School of Medicine, Chicago, Ill.
26. University of Illinois College of Medicine, Chicago, Ill.
27. Indiana University School of Medicine, Bloomington-Indianapolis, Ind.
28. State University of Iowa College of Medicine, Iowa City, Iowa.
29. University of Kansas School of Medicine, Lawrence-Kansas City, Kan.
30. University of Louisville School of Medicine, Louisville, Ky.
31. Louisiana State University School of Medicine, New Orleans, La.
32. Tulane University of Louisiana School of Medicine, New Orleans, La.
33. Johns Hopkins University School of Medicine, Baltimore, Md.
34. University of Maryland School of Medicine and College of Phys. and Surg., Baltimore, Md.
35. Boston University School of Medicine, Boston, Mass.
36. Harvard Medical School, Boston, Mass.
37. Tufts College Medical School, Boston, Mass.
38. University of Michigan Medical School, Ann Arbor, Mich.
39. Wayne University College of Medicine, Detroit, Mich.
40. University of Minnesota Medical School, Minneapolis, Minn.
41. St. Louis University School of Medicine, St. Louis, Mo.
42. Washington University School of Medicine, St. Louis, Mo.
43. Creighton University School of Medicine, Omaha, Neb.
44. University of Nebraska College of Medicine, Omaha, Neb.
45. Albany Medical College, Albany, N. Y.
46. Long Island College of Medicine, Brooklyn, N. Y.
47. University of Buffalo School of Medicine, Buffalo.
48. Columbia University College of Physicians and Surgeons, New York, N. Y.
49. Cornell University Medical College, New York, N. Y.
50. New York Medical College, Flower and Fifth Avenue Hospitals, New York, N. Y.
51. New York University College of Medicine, New York, N. Y.
52. University of Rochester School of Medicine and Dentistry, Rochester, N. Y.
53. Syracuse University College of Medicine, Syracuse, N. Y.
54. Duke University School of Medicine, Durham, N. C.
55. Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C.
56. University of Cincinnati College of Medicine, Cincinnati, Ohio.
57. Western Reserve University School of Medicine, Cleveland, Ohio.
58. Ohio State University College of Medicine, Columbus, Ohio.
59. University of Oklahoma School of Medicine, Oklahoma City, Okla.
60. University of Oregon Medical School, Portland, Ore.
61. Hahnemann Medical College and Hospital of Philadelphia, Philadelphia, Pa.
62. Jefferson Medical College of Philadelphia, Philadelphia, Pa.
63. Temple University School of Medicine, Philadelphia, Pa.
64. University of Pennsylvania School of Medicine, Philadelphia, Pa.
65. Woman's Medical College of Pennsylvania, Philadelphia, Pa.
66. University of Pittsburgh School of Medicine, Pittsburgh, Pa.
67. Medical College of the State of South Carolina, Charleston, S. C.
68. University of Tennessee College of Medicine, Memphis, Tenn.
69. Meharry Medical College, Nashville, Tenn.
70. Vanderbilt University School of Medicine, Nashville, Tenn.
71. Southwestern Medical College of the Southwestern Medical Foundation, Dallas, Tex.
72. University of Texas School of Medicine, Galveston, Tex.
73. Baylor University College of Medicine, Houston, Tex.
74. University of Utah School of Medicine, Salt Lake City, Utah.
75. University of Vermont College of Medicine, Burlington, Vt.
76. University of Virginia Department of Medicine, Charlottesville, Va.
77. Medical College of Virginia, Richmond, Va.
78. University of Wisconsin Medical School, Madison, Wis.
79. Marquette University School of Medicine, Milwaukee, Wis.

Affiliations as Referred to in Column Headed: "Affiliated Service"

104. Jefferson Tuberculosis Sanatorium, Birmingham.
105. Arkansas Children's Home and Hospital, State Hospital, Little Rock, pediatrics, psychiatry.
106. Los Angeles County Hospital, Los Angeles, contagious diseases, psychiatry.
107. Santa Monica Hospital, emergency, outpatient service.
108. Compton Sanitarium, Compton, psychiatry; Children's Hospital, Los Angeles, pediatrics.
109. Children's Hospital, Los Angeles Maternity Service, pediatrics, obstetrics.
110. Fairmont Hospital of Alameda County, San Leandro, and Arroyo-Del Valle Sanatorium, Livermore, medicine, surgery, tuberculosis.
111. Langley Porter Clinic, Children's Hospital, San Francisco, psychiatry, pediatrics.
112. Veterans Administration Hospital, West Los Angeles, psychiatry.
113. California Hospital, Los Angeles, pediatrics.
114. Boulder-Colorado Sanitarium and Hospital, Boulder Community Hospital.
115. University of Colorado Medical School, Denver, pediatrics, outpatient service.
116. Undercliff Sanatorium, Meriden.
117. Connecticut State Hospital, Middleton, psychiatry; Undercliff Sanatorium, Meriden, tuberculosis.
118 Gallinger Municipal Hospital, Washington
119. Children's Hospital, Eastern Dispensary and Casualty Hospital, Washington, pediatrics, emergency.
120. Mount Alto Hospital, Gallinger Municipal Hospital, Washington.
121. Grady Memorial Hospital, Atlanta, pediatrics, gynecology, surgery.
122. St. Elizabeth Hospital, Chicago, obstetrics, gynecology.
123. Frank Cuneo Hospital, Chicago, obstetrics, gynecology.
124. Winfield Hospital, Winfield, tuberculosis.
125. Children's Memorial Hospital, Chicago, pediatrics; Lake County Tuberculosis Sanatorium, Waukegan.
126. Children's Memorial Hospital, City of Chicago Municipal Tuberculosis Sanatorium, pediatrics, tuberculosis.
127. Indiana University Medical Center, Indianapolis, pediatrics.
128. St. Bernard's Hospital, Council Bluffs, psychiatry.
129. Salvation Army Home and Hospital, Sedgwick County Hospital, Wichita, obstetrics, general.
130. St. Joseph's Hospital, Sedgwick County Hospital, Wichita.
131. United States Public Health Service Hospital, Lexington, outpatient service.
132. Children's Free Hospital, Louisville, pediatrics; Waverly Hills Sanatorium, Waverly Hills, tuberculosis.
133. Louisville General Hospital, Children's Free Hospital, Louisville, pediatrics.
134. Shreveport Charity Hospital, pathology.
135. Sydenham Hospital, Baltimore, pediatrics.
136. Charles V. Chapin Hospital, Providence, R. I., contagious diseases.
137. Boston Sanatorium, Boston, tuberculosis.
138. Boston Lying-in Hospital, House of the Good Samaritan, Boston, obstetrics, pediatrics, rheumatic fever.

139. Framingham Union Hospital, Framingham, surgery.
140. Robert Breck Brigham Hospital, New England Deaconess Hospital, Haynes Memorial Hospital, Boston, medicine.
141. Wesson Maternity Hospital, Springfield, obstetrics.
142. Health Department Hospital, Shriners Hospital for Crippled Children, Springfield, tuberculosis, contagious diseases, orthopedics.
143 Herman Kiefer Hospital, Children's Hospital, City of Detroit Receiving Hospital, pediatrics, contagious diseases, tuberculosis.
144. Herman Kiefer, Woman's Hospital, obstetrics, contagious diseases.
145. Herman Kiefer Hospital, Children's Hospital, pediatrics, contagious diseases, obstetrics
146. Herman Kiefer Hospital.
147. St. Joseph's Retreat, Dearborn, psychiatry; Herman Kiefer Hospital, Detroit, contagious diseases.
148. St. Joseph's Retreat, Dearborn, psychiatry.
149 Children's Hospital, City of Detroit Receiving Hospital.
150 Jackson County Sanatorium, Jackson, tuberculosis.
151. Ingham Sanatorium, Lansing, medicine, surgery.
152. Ingham Sanatorium, Lansing, tuberculosis
153. Saginaw County Infirmary Hospital, Saginaw, contagious diseases, pediatrics
154. Miller Memorial Hospital, Duluth, outpatient service.
155. St Mary's Hospital, Minneapolis, obstetrics.
156. Minneapolis General Hospital, obstetrics gynecology, pediatrics, surgery, medicine
157. Gillette State Hospital for Crippled Children, St. Paul.
158. Kansas City Municipal Tuberculosis Hospital.
159 Washington University Group of Hospitals includes Barnes Hospital McMillan Hospital, St Louis Children's Hospital and St. Louis Maternity Hospital; Shriners Hospital for Crippled Children, City Sanitarium.
160 Robert Koch Hospital, Koch, tuberculosis, contagious diseases.
161. Alexian Brothers Hospital, St. Louis, psychiatry.
162. St. Louis City Sanitarium, psychiatry.
163. St. Louis City Hospital, contagious diseases, tuberculosis; Shriners Hospital for Crippled Children, orthopedics.
164. St. Mary's Group of Hospitals includes the Firmin Desloge Hospital, St. Mary's Hospital and Mount St. Rose Sanatorium.
165. New Jersey Orthopaedic Hospital, Orange, Essex County Hospital for Contagious Diseases, Belleville, Essex Mountain Sanatorium, Verona.
166. St. Elizabeth Hospital, Elizabeth, obstetrics.
167. Margaret Hague Maternity Hospital, Berthold S. Pollak Hospital for Chest Diseases, Jersey City.
168. Margaret Hague Maternity Hospital, Jersey City.
169. Anthony N. Brady Maternity Home, Albany.
170. Sydenham Hospital, Baltimore, contagious diseases.
171. Brooklyn Thoracic Hospital, tuberculosis.
172. Children's Hospital, Buffalo, pediatrics
173. Edward J. Meyer Memorial Hospital, Buffalo, psychiatry, contagious diseases.
174. Allied Hospitals of the Sisters of Charity include Emergency Hospital, Louise de Marillac Hospital and Sisters Hospital.
175. Chemung County Sanatorium.
176. Greenpoint Hospital, Brooklyn, obstetrics.
177. Beth Israel Hospital, New York City, obstetrics.
178. Geneva General Hospital, Geneva.
179. Rotation service established between Hospital of the Good Shepherd, Syracuse Memorial Hospital, City Hospital and Syracuse Psychopathic Hospital, comprising Syracuse University Medical Center Hospitals.
180. North Carolina Orthopedic Hospital, Gastonia, orthopedics; Sydenham Hospital, Baltimore, pediatrics.
181. Forsyth County Hospital, Winston-Salem, medicine.
182. Children's Hospital, Akron, pediatrics.
183. Edwin Shaw Sanatorium, tuberculosis; Summit County Receiving Hospital, Cuyahoga Falls, psychiatry.
184. Children's Hospital, Cincinnati, pediatrics.
185. Dunham Hospital, tuberculosis; Hamilton County Home and Chronic Disease Hospital.
186. Cincinnati General Hospital, contagious diseases, pediatrics.
187. Cincinnati General Hospital, pediatrics.
188. St. Ann's Maternity Hospital, Cleveland.
189. Children's Hospital, Columbus, pediatrics.
190. Children's Hospital, St. Francis Hospital, pediatrics.
191. Maumee Valley Hospital, contagious diseases; William W. Roche Memorial Tuberculosis Hospital.
192. Shriners Hospital for Crippled Children.
193. St. Vincent's Hospital, Portland, obstetrics.
195 Hospital of the University of Pennsylvania, Philadelphia, obstetrics.
196. Philadelphia Hospital for Contagious Diseases.
197. Children's Hospital of the Mary J. Drexel Home, Philadelphia, pediatrics.
198. Children's Hospital, Philadelphia, pediatrics.
199. Roselia Foundling and Maternity Hospital, Pittsburgh.
200. Elizabeth Steel Magee Hospital, Children's Hospital, Eye and Ear Hospital, Woman's Hospital, Western State Psychiatric Institute and Clinic.
201. Municipal Hospital, Pittsburgh, contagious diseases.
202. West Side Hospital, Scranton, obstetrics.
203. Charles V. Chapin Hospital, Providence, contagious diseases, psychiatry.
204 T. C. Thompson Children's Hospital, Pine Breeze Sanatorium, Chattanooga, pediatrics, tuberculosis
205. Vanderbilt University Hospital, Nashville.
206. Southern Pacific Hospital, Houston, industrial medicine, surgery.
207. Gulf, Colorado and Santa Fe Hospital, Temple, medicine, surgery.
208. Utah State Tuberculosis Sanatorium.
209. Roanoke City Sanatorium, tuberculosis.
210. King County Hospital, Seattle, outpatient service.
211. King County Tuberculosis Hospital.
212. Children's Orthopedic Hospital, Seattle.
213. Eastern State Hospital, Medical Lake, psychiatry; Edgecliff Sanatorium, tuberculosis.
214. Shriners Hospital for Crippled Children, outpatient service.
215. Mountain View Sanatorium, Lakeview, tuberculosis.
216. South View Hospital, Milwaukee, contagious diseases.
217. Milwaukee Children's Hospital.
218. St. Michael Hospital, Milwaukee, outpatient service.
219 Kauikeolani Children's Hospital, Honolulu, pediatrics.
220. United States Naval Hospital, Brooklyn, obstetrics, gynecology.
221. Newport Hospital, medicine, surgery, obstetrics, gynecology, pediatrics.
222. St. Joseph Hospital, obstetrics, gynecology.
223. San Francisco Hospital, obstetrics, gynecology.
224. Chicago Maternity Center; Chicago Memorial Hospital, pediatrics.
225. University Hospital, obstetrics.
226. Grace Hospital, obstetrics, pediatrics.
227. Misericordia Hospital, New York City, obstetrics, gynecology, pediatrics.
228. Mount Sinai Hospital, obstetrics, gynecology, pediatrics.
229. St. Mary's Infirmary, obstetrics, gynecology, pediatrics.
230. Norfolk General Hospital, Norfolk, obstetrics; Kings Daughters Hospital, Portsmouth, pediatrics.
231. Indianapolis General Hospital, emergency, orthopedics.
232. Children's Hospital, St. Paul, pediatrics.
233. Emergency Hospital, Buffalo, traumatic surgery.
234. Blue Ridge Sanatorium, Charlottesville, tuberculosis.
235. Laguna Honda Home, San Francisco, chronic diseases; Hassler Health Home Redwood City, tuberculosis.
236. Stuart Circle Hospital, St. Luke's Hospital, St. Elizabeth's Hospital, Pine Camp Hospital, Richmond, Raiford Memorial Hospital, Franklin, Mary Washington Hospital, Fredericksburg, Southside Community Hospital, Farmville, Northampton-Accomack Memorial Hospital, Nassawadox, Virginia.

APPROVED RESIDENCES AND FELLOWSHIPS

Council on Medical Education and Hospitals of the American Medical Association
535 North Dearborn Street, Chicago 10

Revised to May 1, 1948

Hospitals, 1,102; Assistant Residencies, Residencies and Fellowships, 15,172

The following educational services investigated and approved by the Council on Medical Education and Hospitals are considered in position to furnish acceptable residency training in accordance with standards adopted by the American Medical Association. In practically all fields these training programs have been reviewed in collaboration with the respective specialty boards. Included in the present list is the expanded number of residencies now available in those approved hospitals which have completed their plans to provide further opportunities for discharged medical officers. Many additional residencies recently organized or in process of development may soon be added to the approved list. All arrangements for appointments should be *made directly with the hospital concerned in the usual manner.*

The star (*) indicates hospitals that are also approved for the training of interns. All hospitals on the approved intern list are likewise accredited for general residencies which represent general house staff assignments following the internship.

The dagger (†) represents temporary approval, *pending formal inspection,* in accordance with the plan for the temporary approval of residencies in specialties as announced in The Journal A. M. A., March 2, 1946, p. 586.

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1. ALLERGY

The following services are approved by the Council and the American Board of Internal Medicine

Hospitals, 11; Assistant Residencies and Residencies, 47

Name of Hospital	Location	Chief of Service	Inpatients Treated[b]	Outpatient Visits	Asst. Res. and Residencies Offered[a]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Veterans Administration								
†Veterans Admin. Hospital	Aspinwall, Pa	L. H. Criep	383	45	1	7/1	1-3	$275.00
Nonfederal								
†Northwestern University Medical Center[4]	Chicago	S. M. Feinberg		5,000	3	7/1	1	100.00
†Research and Educational Hospital★	Chicago	B. Z. Rappaport		11,103	12	....	1	......
†Johns Hopkins Hospital★[4]	Baltimore	L. N. Gay		9,306	1	7/1	1-2	150.00
†Massachusetts General Hospital	Boston	F. M. Rackemann		.....	14	7/1	1-3	41.67
†Buffalo General Hospital★	Buffalo	H. Osgood		2,211	1	....	1	......
Roosevelt Hospital★[1]	New York City	R. A. Cooke	596	37,375	4	7/1	1-2	200.00
†Montefiore Hospital★	Pittsburgh	L. H. Criep	71	1,393	1	7/1	1	50.00
†University of Virginia Hospital★[1]	Charlottesville, Va	O. Swineford, Jr		1,017	3	7/1	1-4	25.00
†Medical College of Virginia, Hospital Division★	Richmond, Va	W. B. Porter	145	2,989	6	7/1	1-3	46.50
†Milwaukee County Hospital★[1]	Milwaukee	T. L. Squier		3,250	1	Varies	1-3	82.26

2. ANESTHESIOLOGY

The following services are approved by the Council and the American Board of Anesthesiology

Hospitals, 152; Assistant Residencies and Residencies, 487

Name of Hospital	Location	Chief of Service	Inpatients Treated[b]	Total Anesthetics	Inhalation Anesthetics	Autopsy Percentage	Asst. Res. and Residencies Offered[a]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Army										
†Fitzsimons General Hospital★	Denver	W. L. Lumpkin	14,796	3,202	805	83	5	1/1	1-3	n
United States Navy										
†U. S. Naval Hospital★	St. Albans, N. Y.	J. G. Kurfees	10,837	3,356	225	67	1	10/1	1-3	n
Veterans Administration										
†Veterans Admin. Hospital	Los Angeles	N. Rupp	10,089	5,281	780	76	10	1/1, 7/1	2-3	275.00
†Veterans Admin. Hospital	San Francisco	W. B. Neff	3,057	1,237	511	75	3	7/1	1-3	275.00
†Veterans Admin. Hospital	Van Nuys, Calif.	W. W. Greene	6,806	2,922	540	80	1	1/1, 7/1	2	275.00
†Veterans Admin. Hospital	Washington, D. C.	L. M. Jones	3,565	2,039	228	79	2	1/1	1-3	275.00
Veterans Admin. Hospital	Hines, Ill.	W. H. Cassels	20,220	6,000	3,400	48	7	Varies	1-3	275.00
†Veterans Admin. Hospital	Indianapolis	L. B. Mueller	4,669	1,379	215	62	1	7/1	1-5	275.00
†Veterans Admin. Hospital	Des Moines, Ia.	S. Cullen	4,795	2,187	459	54	5	1/1, 7/1	3-5	275.00
†Veterans Admin. Hospital	Wadsworth, Kan.	P. H. Lorham	7,440	3,191	305	91	3	....	2-3	275.00
†Veterans Admin. Hospital	Louisville, Ky.	L. Gittelson	8,712	3,195	233	75	1	7/1	1-3	275.00
†Veterans Admin. Hospital	Boston	B. Steinberg	5,233	2,564	445	76	1	....	1-2	275.00
†Veterans Admin. Hospital	Framingham, Mass.	R. M. Anderson	5,998	2,200	*1,000	63	1	7/1	1	275.00
†Veterans Admin. Hospital	Minneapolis	R. Knight and D. B. Wilsey	8,216	3,843	1,348	69	11	Varies	1-3	275.00
†Veterans Admin. Hospital	Jefferson Bks, Mo.	R. M. S. Barrett	7,857	3,300	306	36	3	7/1	1-3	275.00
†Veterans Admin. Hospital	Batavia, N. Y.	P. W. Searles	2,510	1,480	225	47	2	7/1	2-3	275.00
†Veterans Admin. Hospital	New York City	A. J. Losito	10,168	3,401	1,187	47	8	1/1, 7/1	1-2	275.00
†Veterans Admin. Hospital	Oklahoma City	H. E. Doudna	2,812	1,351	172	49	1	7/1	1-3	275.00
†Veterans Admin. Hospital	Portland, Ore.	J. H. Hutton	7,383	2,925	326	76	1	7/1	1-3	275.00

Numerical and other references will be found on page 89

2. ANESTHESIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[5]	Total Anesthetics	Inhalation Anesthetics	Autopsy Percentage	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
†Veterans Admin. Hospital	Aspinwall, Pa.	I. W. Flamberg	6,405	3,070	797	51	1	7/1	1-3	275.00
†Veterans Admin. Hospital	Memphis, Tenn.	G. J. Pastorius	10,295	3,887	374	73	4	7/1	1-3	275.00
†Veterans Admin. Hospital	Nashville, Tenn.	B. H. Robbins	5,239	811	86	68	2	7/1	1-3	275.00
†Veterans Admin. Hospital	Dallas, Texas	E. P. Weir	3,185	1,243	352	50	2	Varies	2-3	275.00
†Veterans Admin. Hospital	McKinney, Texas	F. A. D. Alexander	4,904	1,513	410	73	1	Varies	1-3	275.00
†Veterans Admin. Hospital	Richmond, Va.	I. S. Gold	8,530	2,061	753	68	2	Varies	1-3	275.00
†Veterans Admin. Hospital	Milwaukee, Wis.	R. Foregger	6,830	1,880	486	53	4	7/1	2-3	275.00
Nonfederal										
†Jefferson-Hillman Hospital★[4]	Birmingham, Ala.	A. McNeal	21,028	8,515	5,912	37	1	7/1	1	50.00
†Employees Hospital of the Tennessee Coal, Iron and Railroad Company★	Fairfield, Ala.	E. B. Robinson, Jr.	8,117	3,120	1,411	40	1	7/1	1-2	200.00
Los Angeles County Hospital★[4]	Los Angeles	J. B. Dillon	58,418	9,712	3,188	41	12	Varies	2	165.00
White Memorial Hospital★[4]	Los Angeles	L. Lee	8,901	5,269	1,932	60	4	...	1-3	147.33
†Peralta Hospital[4]	Oakland, Calif.	F. E. Davis	8,520	7,131	2,681	33	4	Varies	1	125-00
Samuel Merritt Hospital	Oakland, Calif.	B. M. Anderson	9,326	5,114	2,532	63	2	1/1, 7/1	1-2	110.00
†Children's Hospital★[4]	San Francisco	H. Lapp	7,692	3,406	1,700	61	1	7/1	1	50.00
Franklin Hospital★[4]	San Francisco	J. L. Cardwell	7,716	5,169	3,298	50	2	7/1	1-2	100.00
Stanford University Hospitals★[4]	San Francisco	W. B. Neff	11,246	8,355	3,541	57	5	7/1	1-2	50.00
University of California Hospital★[4]	San Francisco	F. J. Murphy	8,891	4,878b	2,609b	67	3	Varies	1	50.00
Hartford Hospital★[4]	Hartford, Conn.	R. M. Tovell	23,855	24,569	11,788	55	22	Quarterly	1-2	50.00
†St. Francis Hospital★[4]	Hartford, Conn.	S. Martin	15,592	11,139b	...	32	6	1/1, 7/1	1-3	50.00
Grace-New Haven Community Hospital										
†New Haven Unit (University Service)★	New Haven, Conn.	L. J. Hampton	12,210	5,829	4,850	59	1	7/1	1	40.00
†St. Mary's Hospital★[4]	Waterbury, Conn.	W. J. Grillo	9,578	5,399	3,398	32	2	7/1	1-2	50.00
†Waterbury Hospital★[4]	Waterbury, Conn.	F. C. Wilcox, Jr.	11,026	6,374	3,748	40	2	...	1-2	100.00
†Memorial Hospital★[4]	Wilmington, Del.	R. E. Allen	5,636	2,951	827	51	3	...	1-3	100.00
†Doctors Hospital★	Washington, D. C.	C. W. Hyde	8,771	4,959	667	71	2	7/1	1-3	100.00
†Gallinger Municipal Hospital★[4]	Washington, D. C.	L. H. Mousel and D. Stubbs	21,116	8,251	5,677	55	2	7/1	1-2	100.00
†George Washington University Hospital★	Washington, D. C.	L. H. Mousel	3,063	1,627	890	67	4	...	2	...
University Hospital★[4]	Augusta, Ga.	P. P. Volpitto	14,532	6,206	4,238	25	3	7/1	1-2	40.00
Michael Reese Hospital★[4]	Chicago	B. Stodsky	16,081	8,276	6,288	67	6	Varies	1-2	50.00
†Mount Sinai Hospital★[4]	Chicago	R. Weyl	8,313	4,661	3,998	47	1	7/1	1-2	50.00
†[illegible] Hospital★[4]	Chicago	M. Karp	5,838	2,412	2,106	68	1	...	1	
[illegible] Hospitals★[4]	Chicago	W. H. Cassels	6,591	2,562	...	83	6	7/1	1-3	55.00
[illegible]★[4]	Chicago	W. A. Conroy	15,486	6,300	5,360	62	4	...	1-2	...
[illegible]★[4]	Chicago	H. Livingstone	12,615	9,708	6,856	70	7	Varies	1-3	50.00
Wesley Memorial Hospital★[4]	Chicago	M. Karp	13,015	7,072	4,754	66	2	1/1, 7/1	1-3½	25.00
Evanston Hospital★	Evanston, Ill.	J. E. Remlinger	7,995	6,231	3,416	86	5	...	3	50.00
Indianapolis General Hospital★	Indianapolis	L. B. Mueller	10,246	11,213	2,171	33	2	7/1	1-2	$ 70.00
Methodist Hospital★[4]	Indianapolis	J. Whitehead	24,752	19,667	12,151	32	3	7/1	1-2	200.00
†Ball Memorial Hospital★	Muncie, Ind.	W. B. Adams	8,469	5,670	...	37	2	7/1	1-2	125.00
†Memorial Hospital★	South Bend, Ind.	R. Rosenheimer	7,913	...		49	1	7/1	2	100.00
University Hospitals★[4]	Iowa City	S. Cullen	18,304	8,808	4,757	63	9	7/1	1	50.00
University of Kansas Hospitals★[4]	Kansas City, Kan.	P. H. Lorhan	8,463			65	2	...	3	65.00
Louisville General Hospital★	Louisville, Ky.	M. Davis	8,053	2,424	1,118	41	2	7/1	1	45.00
Charity Hospital of Louisiana★[4]	New Orleans	J. Adriani	45,781	13,332	9,938	49	8	7/1	1-3	25.00
†Central Maine General Hospital★[4]	Lewiston, Maine	G. Clapperton	5,721	3,646	2,388	46	2	7/1	1-2	75.00
†Beverly Hospital★	Beverly, Mass.	J. H. Fine	5,312	3,389	605	87	1	...	1-2	75.00
†Boston City Hospital★[4]	Boston	S. C. Wiggin	36,791	13,035	4,985	34	2	...	1	66.67
Faulkner Hospital★	Boston	E. C. Allen	3,570	2,039b	334b	46	1	11/1	1	75.00
Lahey Clinic[4]	Boston	U. H. Eversole	...	...			10	...	1-3	
Massachusetts General Hospital★	Boston	H. K. Beecher	7,591	...		62	7	...	1-3	41.67
Massachusetts Memorial Hospital★[4]	Boston	J. G. Arrowood	7,449	3,090	1,657	60	3	Varies	1	50.00
New England Hospital for Women and Children★[4]	Boston	E. Bartlett	5,027	3,684	2,456	52	1	...	1	50.00
†St. Elizabeth's Hospital★	Boston	L. Zentgraf	6,900	5,710	3,118	53	1	6/1	1	75.00
†Cambridge City Hospital★	Cambridge, Mass.	D. R. Branch	6,110	3,683	2,059	45	1	1/1	1-2	
†Mount Auburn Hospital★[4]	Cambridge, Mass.	J. H. Buskirk	6,873	5,390	2,351	41	2	7/1	2	100.00
Newton-Wellesley Hospital★[4]	Newton, Mass.	R. S. Hunt	6,652	4,978	3,155	37	1	...	3	100.00
†Salem Hospital★	Salem, Mass.	R. R. Richardson	6,077	4,078	2,707	36	1	7/1	1	50.00
City of Detroit Receiving Hospital★[4]	Detroit	I. B. Taylor	18,183	6,548	2,127	27	5	7/1	1	167.00
Providence Hospital★	Detroit	...	13,067	6,417	3,369	52	1	7/1	1-3	140.00
†[illegible]★[4]	Grand Rapids, Mich.	...	10,704	6,083b	2,053b	43	1	7/1	1-2	100.00
[illegible]★[4]	Minneapolis	R. Knight	9,532	4,140	2,912	82	17	7/1	1-3	100.00
[illegible]	Rochester, Minn.	J. S. Lundy	(See page 89)				10	...	3	...
†Ancker Hospital★	St. Paul	R. Knight	7,029	4,640	1,118	71	1	...	1	...
†Research Hospital★[4]	Kansas City, Mo.	C. R. McCubbin	7,628	...	...	64	1	7/1	1-3	100.00
West Jersey Hospital★	Camden, N. J.	K. S. Russell	8,172	3,765	2,520	58	1	4/1	2	150.00
Jersey City Hospital★	Jersey City, N. J.	W. Gleeson	21,474	6,610	2,003	28	5	...	1-3	35.00
Albany Hospital★[4]	Albany, N. Y.	B. Etsten	14,832	5,192	3,019	61	2	...	2-3	...
†Beth-El Hospital★[4]	Brooklyn	J. Herzlich	8,423	2,534	957	39	2	1/1, 7/1	1-2	100.00
†Beth Moses Hospital★[4]	Brooklyn		(See Maimonides Hospital)							
Jewish Hospital★[4]	Brooklyn	I. M. Pallin	15,314	6,592	2,909	45	6	...	3	120.00
Maimonides Hospital										
†Beth Moses Division★[4]	Brooklyn	J. Barchan	4,433	2,315	823	20	1	11/1	1	125.00
†Methodist Hospital★[4]	Brooklyn	R. Waelsch	9,685	6,460	3,899	50	2	7/1	2	25.00
Buffalo General Hospital★	Buffalo	C. J. Durshordwe	10,757	10,546	3,676	46	1	7/1	1	25.00
†Edward J. Meyer Memorial Hospital★	Buffalo	...	10,523	2,515	1,115	46	1	7/1	2	100.00
Bellevue Hospital, Div. III-N. Y. Univ.★[4]	New York City	E. A. Rovenstine	59,511	18,000b	12,000b	35	12	1/1, 7/1	2-3	70.00
†Beth Israel Hospital★[4]	New York City	S. G. Hershey	8,829	5,807	4,702	43	2	7/1	1	50.00
Flower and Fifth Avenue Hospitals★[4]	New York City	D. E. Brace	11,634	8,432	5,214	31	2	6/1	1	None
French Hospital★[4]	New York City	S. H. Lesinger	6,311	2,388	1,966	42	2	7/1	1	100.00
†Goldwater Memorial Hospital★[4]	New York City	E. A. Rovenstine	1,372	827	156	50	2	...	1	175.00
Hospital for Joint Diseases★[4]	New York City	A. M. Betcher	5,580	3,730	2,315	47	2	10/1	1-3	40.00
†Hospital for Special Surgery[4]	New York City	C. Burstein	3,233	2,596	2,169	47	2	1/1, 5/15	1	100.00
[illegible]★[4]	New York City	F. E. Fierro	10,724	2,616	1,856	25	5	4/1, 7/1	1-2	175.00
[illegible] Chronic Diseases★[4]	New York City	B. Cohen	2,836	...	...	50	1	7/1	1-2	50.00
[illegible]	New York City	B. H. Eliasberg	16,171	8,439	5,763	59	3	1/1, 7/1	1-3	50.00
[illegible]	New York City	M. Ward	20,172	13,025	10,399	66	1	7/1	1	83.33
New York Polyclinic Medical School and Hospital★	New York City	S. Resnick	9,301	5,165	2,973	27	3	7/1	2	100.00
New York Post-Graduate Medical School and Hospital★[4]	New York City	R. W. Robertazzi	9,130	5,094	2,594	39	5	Varies	1-2	75.00
Presbyterian Hospital★[4]	New York City	V. Apgar	29,670	17,510	9,928	66	13	...	1-2	41.66
St. Luke's Hospital★	New York City	G. E. Burford	9,086	6,847	3,375	41	3	...	1-3	150.00
St. Vincent's Hospital★[4]	New York City	G. H. Van Gilluwe	13,116	4,903	3,342	46	2	7/1	1-3	50.00
†Sydenham Hospital★	New York City	M. C. Fischman	5,614	2,294	1,457	36	2	7/1	1	75.00
†Rochester General Hospital★[4]	Rochester, N. Y.	S. L. Sahler	12,283	5,990	2,774	75	2	7/1	1-2	70.00
Grasslands Hospital★[4]	Valhalla, N. Y.	H. F. Bishop	4,470	1,145	701	58	1	7/1	1-3	75.00
†Duke Hospital★[4]	Durham, N. C.	R. Martin	13,571	9,889	6,958	59	4	7/1	2-3	...
†Christ Hospital★	Cincinnati	L. E. Larrick	10,704	6,451	2,030	36	1	7/1	1	75.00

Numerical and other references will be found on page 89.

2. ANESTHESIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Total Anesthetics	Inhalation Anesthetics	Autopsy Percentage	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Cincinnati General Hospital★	Cincinnati	M. A. Costello	14,757	3,559	1,932	47	1	7/1	1-2	$100.00
Cleveland Clinic Foundation Hospital[4]	*Cleveland*	*D. E. Hale*	8,354	9,724	1,587	46	1	7/1	1-2	100.00
[illegible]	Cleveland	S. Katz	9,726	7,302	3,454	45	1	7/1	1	100.00
[illegible]	Cleveland	B. B. Sankey	12,713	10,086	6,618	49	2	6/25	2	75.00
[illegible] Hospital★[4]	Columbus, Ohio	J. J. Jacoby	8,360	5,893	2,406	69	3	7/1	1-3	50.00
[illegible]	East Cleveland, Ohio	R. J. Whitacre	10,655	9,245	5,467	39	4	....	2	100.00
†Lakewood Hospital★	Lakewood, Ohio	S. Gardner	5,411	4,002	2,614	48	1	7/1	1	100.00
†Mansfield General Hospital[4]	Mansfield, Ohio	C. R. Damron	7,032	3,124	2,023	19	2	1/1, 7/1	1-2	100.00
University Hospitals★[4]	Oklahoma City	H. E. Doudna	5,914	3,210	2,630	43	2	7/1	1-2	35.00
University of Oregon Medical School Hospitals and Clinics★[4]	Portland, Ore.	J. H. Hutton	6,437	9,567	2,616	63	4	7/1	1-2	75.00
†Abington Memorial Hospital★	Abington, Pa.	R. Maio	7,997	5,875	3,621	53	1	7/1	2	50.00
†Harrisburg Hospital★[4]	Harrisburg, Pa.	E. F. Toth	9,916	8,384	5,589	35	2	7/1	1-2	100.00
†Conemaugh Valley Memorial Hospital★[4]	Johnstown, Pa.	C. B. Cobern	11,549	7,106	.....	11	1	10/1	1	150.00
Hahnemann Hospital★[4]	Philadelphia	H. S. Ruth	11,910	....	...	61	5	1/1	1	50.00
Hosp. of the University of Pennsylvania★[4]	Philadelphia	R. D. Dripps	17,749	13,119	4,950	79	13	7/1	2-3	100.00
†*Hospital of the Woman's Medical College of Pennsylvania*★	Philadelphia	W. A. Weiss	4,885	2,885	1,914	40	2	7/1	2-3	50.00
†Lanken [illegible]	Philadelphia	F. J. Audin	6,162	8,195	5,361	53	1	7/1	1-3	100.00
†Mount [illegible]	Philadelphia	A. T. Rose	6,209	4,328	2,342	72	3	7/1	1-2	100.00
†*Philade* [illegible]	*Philadelphia*	J. E. Ruben	22,053	4,121	1,511	58	3	....	1-3	70.00
[illegible] Hospital[4]	Philadelphia	F. Haugen	7,116	3,078b	2,944b	57	2	....	2	50.00
[illegible]ital★[4]	Philadelphia	C. B. Hickox	13,664	12,488	3,987	49	2	7/1	3	50.00
[illegible] Hospital★[4]	Philadelphia	E. P. Van Tine	4,105	1,916	761	39	1	7/1	1	150.00
†Allegheny General Hospital★	Pittsburgh	R. L. Patterson	11,560	8,564	3,112	23	1	9/1	2	100.00
†St. Francis Hospital★	Pittsburgh	G. J. Thomas	14,850	7,209	1,776	21	2	9/1	1-3	100.00
Reading Hospital★[4]	Reading, Pa.	P. D. Woodbridge	9,125	6,896	4,170	57	4	....	1	100.00
†Christian H. Buhl Hospital	Sharon, Pa.	M. E. Cushnie	7,582	4,111	3,636	31	2	7/1	1-2	250.00
Rhode Island Hospital★[4]	Providence, R. I.	M. Saklad	13,702	6,653b	3,496b	61	2	....	1-2	50.00
[illegible]	Chattanooga, Tenn.	H. M. Ausherman	13,326	6,264	3,048	28	1	7/1	2	150.00
[illegible]	Memphis, Tenn.	J. L. McGehee	17,612	6,431	3,889	63	2	4/1, 7/1	1-2	30.00
[illegible]	Nashville, Tenn.	B. H. Robbins	9,296	5,500	3,400	59	2	7/1	1	.....
[illegible]	Dallas, Texas	E. F. Weir	16,450	14,601	10,279	30	1	7/1	2	50.00
[illegible]xas Medical Branch)★[4]	Galveston, Texas	H. C. Slocum	9,110	4,735	..	53	7	....	1-3	50.00
†Hermann Hospital★[4]	Houston, Texas	L. F. Schuhmacher	9,589	5,156	1,105	55	3	....	1-3	50.00
†Dr. W. H. Groves Latter Day Saints Hospital★	Salt Lake City	S. M. Smith	14,054	10,751	7,931	34	2	Varies	2-3	100.00
[illegible]	Burlington, Vt.	J. Abajian	3,711	1,392	600	40	1	....	1	......
[illegible]	Burlington, Vt.	J. Abajian	5,903	2,356	839	58	2	7/1	1	100.00
[illegible]	Seattle, Wash.	J. H. Mathwig	12,015	2,850	1,138	47	2	7/1	2-3	125.00
[illegible]l★[4]	Madison, Wis.	R. M. Waters	12,498	5,206	3,541	84	7	7/1	3	25.00
[illegible]	Milwaukee	G. Shortz	4,821	4,309	3,810	59	2	Varies	2-3	50.00
[illegible]	Milwaukee	W. S. Phillips	7,797	5,125	4,429	41	1	Varies	2	......

3. CARDIOVASCULAR DISEASE

The following services are approved by the Council and the American Board of Internal Medicine
Hospitals, 17, Assistant Residencies and Residencies, 55

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Army										
†Walter Reed General Hospital★	Washington, D. C.	J. S. Taylor	381	2,197	26	21	2	1/1	1	n
Veterans Administration										
†Veterans Admin. Hospital	Hines, Ill.	L. A. Baker	1,284	.....	185	71	2	1/1	1-2	$275.00
Nonfederal										
†*LaRabida Jackson Park Sanitarium*[4]	Chicago	J. W. Hofer	138	.....	.....	..	1	1/1, 7/1	1-3	50.00
[illegible]	Chicago	L. N. Katz	......	2,979	.....	..	9	Varies	1-3	50.00
[illegible]	Indianapolis	G. S. Bond	.....	234	.....	..	1	7/1	2-3	33.33
[illegible]	Boston	H. B. Sprague	173	.....	2	2	3	7/1	1-3	50.00
[illegible]	*Boston*	P. D. White	(Included in Internal Med.)				1	....	1	......
[illegible]	Detroit	F. J. Smith	856	12,459	100	55	6	1/1, 7/1	1-3	200.00
[illegible]	Irvington, N. Y.	A. G. Kuttner	152	.....	.....	..	1	7/1	1	200.00
[illegible]	New York City	A. M. Master	......	.....	.....	..	7	1/1	1-2	50.00
[illegible]hildren[4]	Roslyn, L.I., N. Y.	L. M. Taran	294	.....	2	1	2	1/1, 7/1	1-3	150.00
[illegible]	Durham, N. C.	E. S. Orgain	(Included in Internal Med.)				14	7/1	1+	40.00
†Hospital of the Woman's Medical College of Pennsylvania★[4]	Philadelphia	W. G. Leaman	(Included in Internal Med.)				1	7/1	1	100.00
Pennsylvania Hospital★	Philadelphia	J. B. VanderVeer	......	2,712	.....	..	2	1/1	1-3	20.00
†Philadelphia General Hospital★[4]	Philadelphia	T. M. McMillan	(Included in Internal Med.)				1	....	1-3	70.00
St. Francis Hospital★	Pittsburgh	A. P. D'Zmura	409	47	74	4	1	7/1	1	110.00
Rhode Island Hospital★	Providence, R. I.	F. B. Cutts	(Included in Internal Med.)				1	7/1	1	50.00

4. CONTAGIOUS DISEASES

Hospitals, 19; Assistant Residencies and Residencies, 76

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Navy									
U. S. Naval Hospital★	Great Lakes, Ill.	H. H. Carroll	764	3	3	1	....	1	n
Nonfederal									
Los Angeles County Hospital★[4]	Los Angeles	A. G. Bower	4,544	225	138	3	Varies	1	......
Children's Hospital★[4]	San Francisco	E. B. Shaw	380	12	7	1	7/1	1	$ 50.00
J. J. McCook Memorial Hospitals★[4]	Hartford, Conn.	C. L. Thenebe	764	10	7	1	....	1	100.00
Cook County Hospital★[4]	Chicago	H. Leichenger	1,567	69	...	1	1/1, 7/1	1	27.50
Municipal Contagious Disease Hospital[4]	Chicago	A. L. Hoyne	2,274	116	75	12	....	½	135.50
Sydenham Hospital[4]	Baltimore	H. L. Hodes	1,103	36	27	3	....	½-1	40.00
Boston City Hospital★[4]	Boston	E. H. Place	1,303	7	4	2	....	1	66.67

Numerical and other references will be found on page 89

4. CONTAGIOUS DISEASES—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[5]	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Massachusetts Memorial Hospitals★[4]	Boston	L. Weinstein	1,381	32	20	4	1/1, 7/1	1	50.00
Belmont Hospital	Worcester, Mass.	H. J. Hartnett	649	11	1	2	....	1	155.00
Herman Kiefer Hospital[4]	Detroit	D. C. Young	1,662	115	71	3	7/1	1	350.00
Kansas City General Hospital No. 1★	Kansas City, Mo.	C. R. Ferris	423	26	22	1	7/1	1	50.00
St. Louis City Hospital★[4]	St. Louis		740	32	22	3	7/1	1	95.00
Essex County Hosp. for Contagious Dis.[4]	Belleville, N. J.	E. L. Smith	2,581	25	11	7	1/1, 7/1	1	125.00
Kingston Avenue Hospital[4]	Brooklyn	T. Givan	3,012	40	...	6	1/1, 7/1	1	120.00
Queens General Hospital★[4]	Jamaica, N. Y.	H. A. Reisman	411	7	5	2	7/1	2	70.00
Willard Parker Hospital[4]	New York City	J. F. Landon	5,861	40	29	16	Varies	1	130.00
City Hospital★[4]	Cleveland	J. A. Toomey	1,983	72	35	4	7/1	1-4	60.00
Philadelphia Hosp. for Contagious Dis.[4]	Philadelphia	A. C. LaBoccetta	3,671	61	36	4	....	1	178.00

5. DERMATOLOGY AND SYPHILOLOGY

The following services are approved by the Council and the American Board of Dermatology and Syphilology
(See footnotes 1, 2 and 3 for number of years credit)
Hospitals, 75, Assistant Residencies and Residencies, 219

Name of Hospital	Location	Chief of Service	Inpatients Treated[5]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Army										
Walter Reed General Hospital★[2]	Washington, D. C.	L. S. Leland	456	3,600	..	..	2	1/1	1-3	n
Brooke General Hospital★[2]	San Antonio, Tex.	M. P. Moursund	1,093	12,985	2	2	4	1/1	1	n
United States Navy										
U. S. Naval Hospital★[2]	St. Albans, N. Y.	C. D. Bell	480	......	..	..	4	10/1	1-3	n
U. S. Naval Hospital★[2]	Philadelphia	H. L. Gilman	526	7,547	2	1	2	Varies	1	n
United States Public Health Service										
†U. S. Marine Hospital★[2]	Stapleton, S. I., N. Y.	J. A. Trautman	2,437	14,869	1	..	4	7/1	1-3	n
Veterans Administration										
†Veterans Administration Center[2, 4]	Los Angeles, Calif.		551	6,105	12	12	1	1/1	2	$275.00
†Veterans Admin. Hospital[1, 4]	Van Nuys, Calif.	G. W. Leiby	236	825	1	1	2	1/1, 7/1	1-3	275.00
†Veterans Admin. Hospital[2]	Hines, Ill.	E. A. Oliver	911	......	8	3	3	Varies	2-3	275.00
†Veterans Admin. Hospital[1]	New Orleans, La.	C. B. Kennedy	197	944	..	..	2	7/1	1-3	275.00
†Veterans Admin. Hospital[2, 21]	Fort Howard, Md.	M. Sullivan	(Included in Medicine)				3	7/1	1-2	275.00
†Veterans Admin. Hospital[3]	Minneapolis	H. E. Michelson and J. R. Haserick	392	...	1	..	3	....	3	275.00
†Veterans Admin. Hospital[2]	New York City	B. Straus	417	4,806	4	3	3	1/1, 7/1	1-2	275.00
†Veterans Admin. Hospital[1]	Aspinwall, Pa.	S. Crawford	256	......	10	6	1	7/1	1	275.00
Nonfederal										
†Jefferson-Hillman Hospital★[2, 4]	Birmingham, Ala.	R. O. Noojin	216	8,753	9	9	2	7/1	1-2+	50.00
Los Angeles County Hospital★[3, 4]	Los Angeles	T. W. Nesbit	774	13,940	14	6	3	Varies	3	165.00
†White Memorial Hospital★[2]	Los Angeles	S. Ayers, Jr.	...	8,477	..	..	1	Varies	1-2	175.00
Stanford University Hospitals★[1, 4]	San Francisco	O. E. L. Schmidt	22	14,417	1	..	1	7/1	1-2	50.00
University of California Hospital★[2, 4]	San Francisco	....	29	7,601	..	..	3	Varies	1	50.00
University of Colorado Medical Center Colorado General Hospital★[1, 4]	Denver	O. S. Philpott	36	4,012	1	1	1	1/1, 7/1	1	75.00
pital★[2]	Washington, D. C.	F. Eichenlaub	45b	1,475b	..	..	2	....	1-3	......
	Alto, Ga.	L. S. Saler	13,706	......	1	..	1	....	1	......
nt Center[1, 22]	Chicago	H. N. Bundesen	5,798	...	..	..	2	Varies	1	..
[4]	Chicago	T. Cornbleet	965	10,639	36	..	3	1/1, 7/1	1-3	27.50
Michael Reese Hospital★[1, 4]	Chicago	H. Ratner	21	5,641	..	..	1	7/1	1	25.00
Northwestern Univ. Medical Center★[1, 4]	Chicago	E. A. Oliver	....		..	..	1	....	1-3	....
Research and Educational Hospitals★[3, 4]	Chicago	F. E. Senear	44	10,623	2	..	1	7/1	1-3	55.00
University of Chicago Clinics★[3]	Chicago	S. Rothman	109	5,221	3	1	4	7/1	1-3	25.00
pital★[3]	Indianapolis	J. R. Brayton	157	8,457		..	3	7/1	1-3	70.00
	Iowa City	R. Nomland	315	3,457	7	4	2	7/1	1	50.00
itals★[1]	Kansas City, Kans.	C. C. Dennie	170	1,702	..	..	2	....	1	..
★[1]	Louisville, Ky.	....		2,042	..	..	1	7/1	1	45.00
na★[3, 4]	New Orleans	....	359	44,274	6	2	5	7/1	1-3	25.00
[22]	Baltimore	J. E. Moore	......	8,495	..	..	3	7/1	1+	....
	Baltimore	H. M. Robinson, Sr.	.	16,158	..	..	1	7/1	1-2	75.00
Boston City Hospital★[2, 4]	Boston	J. G. Downing	56	17,413	4	1	2	....	1-2	66.67
Massachusetts General Hospital★[3]	Boston	C. G. Lane	287b	15,719b	..	..	5	7/1	1-3	41.66
Massachusetts Memorial Hospitals★[1, 4]	Boston	J. G. Downing and W. L. Fleming	......	97,398	..	..	1	9/1	1	50.00
University Hospital★[3, 4]	Ann Arbor, Mich.	A. C. Curtis	723	10,214	14	7	7	7/1	1-5	111.40
City of Detroit Receiving Hospital★[3, 4]	Detroit	L. W. Shaffer	69	7,163	..	..	6	....	1-3	167.00
Minneapolis General Hospital★[3, 4]	Minneapolis	S. E. Sweitzer	298	8,370	3	2	2	1/1, 7/1	1-3	115.00
University Hospitals★[3, 4]	Minneapolis	H. E. Michelson	109	881	..	..	2	7/1	1-3	115.00
Mayo Foundation[1]	Rochester, Minn.	P. A. O'Leary	(See Page 89)		..	..	10	....	1-3	.....
Ancker Hospital★[2]	St. Paul	H. N. Klein	313	4,012	2	..	1	....	1-3	....
Barnard Free Skin and Cancer Hospital[2]	St. Louis	R. S. Weiss	50	11,025	1	1	2	7/1	1-2	200.00
†	St. Louis	R. S. Weiss	229	27,233	2	2	4	7/1	1-2	25.00
† als★[1, 4]	St. Louis	G. V. Stryker	151	13,182	1	1	2	Varies	3	35.00
	Brooklyn	L. J. Frank	1,184	15,279	18	4	2	7/1	1-2	50.00
	Buffalo	E. D. Osborne	64	3,563	..	..	2	7/1	1-3	25.00
Hospital★[1, 4]	Buffalo	E. D. Osborne	484	11,591	2	1	3	7/1	3	100.00
Bellevue Hospital, Div. III—N. Y. Univ.★[3, 4]	New York City	F. C. Combes	5,302b	47,896b	.	..	10	Varies	3	70.00
l Center★[3, 4]	New York City	A. B. Cannon	15	43,062	1	..	2	....	3	75.00
	New York City	P. Gross	8	4,161	..	..	1	9/1	1	40.00
	New York City	S. Peck	101b	19,475b	.	..	1	7/1	1	50.00
New York City Hospital★[1, 4]	New York City	J. J. Eller	635	8,222	6	2	2	7/1	1	120.00
New York Hospital★[3, 4]	New York City	D. P. Barr and G. M. Lewis	......	24,048	..	..	2	....	1	......
†New York Polyclinic Medical School and Hospital★[1]	New York City	A. H. Montgomery	20	8,561	2	1	1	....	1	......
New York Post-Graduate Medical School and Hospital★[3]	New York City	M. B. Sulzberger	158	112,733	2	1	3	Varies	1-2	...
†Roosevelt Hospital★[1, 4]	New York City	G. C. Andrews	......	8,912b	..	..	1	7/1	1	103.33
†St. Luke's Hospital★[2]	New York City	L. P. Barker	......	13,195	..	..	1	1/1	1-2	50.00
Duke Hospital★[3, 4]	Durham, N. C.	J. L. Callaway	226	2,753	1	..	4	7/1	1	83.33
Cincinnati General Hospital★[1, 4]	Cincinnati	L. Goldman	402	5,143	6	5	4	7/1	1-2	.....

Numerical and other references will be found on page 89

5. DERMATOLOGY AND SYPHILOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[8]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
City Hospital★[3,4]	Cleveland	H. N. Cole	807	15,192	1	1	4	7/1	1	$ 60.00
Cleveland Clinic Foundation Hospital[2,4]	Cleveland	E. W. Netherton	149	18,186	6	3	3	7/1	1-2	100.00
University Hospitals★[3,4]	Cleveland	H. N. Cole	328	15,540	5	..	2	7/1	1+	25.00
University of Oregon Medical School Hospitals and Clinics★[2,4]	Portland, Ore.	L. B. Kingery	64	5,010	..	..	2	7/1	2	75.00
Graduate Hospital of the Univ. of *Pennsylvania*★[2]	*Philadelphia*	D. M. Pillsburg	65	6,729	..	..	2	7/1	1-2	......
Hospital of the Univ. of Pennsylvania★[3,4]	Philadelphia	D. M. Pillsburg	600	23,301	1	..	14	7/1	1-3	......
Jefferson Medical College Hospital★[2]	Philadelphia	F. C. Knowles	......	4,818	..	..	1	....	1	......
†Pennsylvania Hospital★[1]	Philadelphia	H. Beerman	......	9,925	..	..	1	....	1	......
Skin and Cancer Hospital[2,4]	Philadelphia	D. M. Pillsburg and C. S. Wright	245	52,384	..	..	4	7/1	1-2	30.00
University of Pittsburgh Med. Center★[3,4]	Pittsburgh	W. H. Guy	......	......	..	..	1	....	1-3	33.00
†Parkland Hospital★[1,4]	Dallas, Texas	B. Shelmire	......	63,424b	..	..	6	Varies	1-2+	86.00
John Sealy Hospital (Univ. of Texas Medical Branch)★[3,4]	Galveston, Texas	C. N. Frazier	173	8,732	1	.	7	....	1-3	50.00
University of Virginia Hospital★[3,4]	Charlottesville, Va.	D. C. Smith	264	12,606	3	2	11	7/1	3-4	31.00
†State of Wisconsin General Hospital★[1,4]	Madison, Wis.	S. A. M. Johnson	300	1,942	8	3	1	7/1	3	25.00

6. GASTROENTEROLOGY

The following services are approved by the Council and the American Board of Internal Medicine

Hospitals, 2; Assistant Residencies and Residencies, 3

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[8]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
†Michael Reese Hospital★	Chicago	H. Necheles	...	1,746	...	...	2	7/1	1	$ 25.00
†Lenox Hill Hospital★	New York City	H. Rafsky	178	.....	9	4	1	Varies	1-2	50.00

7. GENERAL RESIDENCY

A general residency (also called a "mixed residency") is a general hospital assignment of one or more years after the internship. It usually does not carry credit toward certification by the American Boards in the specialties, but is designed rather to provide additional general training. All approved internship hospitals are also approved for general residencies.

Hospitals, 90; Assistant Residencies and Residencies, 269

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Deaths	Autopsies	Asst. Res. and Residencies Offered[8]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Baptist Hospitals[4]	Birmingham, Ala	H. E. Simon	8,545	169	43	5	7/1	1	$150.00
St. Vincent's Hospital	Birmingham, Ala	J. L. Carmichael	5,460	106	36	3	4/1	1	200.00
St. Margaret's Hospital	Montgomery, Ala	J. H. Blue	8,431	210	47	3	7/1	1	......
Pima County General Hospital[4]	Tucson, Ariz	H. E. Thompson	1,320	183	42	1	1/1, 7/1	1	200.00
St. Mary's Hospital and Sanatorium	Tucson, Ariz	F. D. Francis	6,460	187	89	2	1/1	1	175.00
Tucson Medical Center[4]	Tucson, Ariz	W. P. Holbrook	3,991	107	55	1	7/1	1	200.00
Leo N. Levi Memorial Hospital	Hot Springs, Ark.	D. C. Lee	1,298	63	10	1	6/1	1-2	250.00
Kern General Hospital[4]	Bakersfield, Calif	....	10,669	507	263	28	....	1	......
Paradise Valley Sanitarium and Hospital[4]	National City, Calif	H. A. Hall	3,911	111	31	2	....	1	......
Monterey County Hospital[4]	Salinas, Calif	J. C. Sharp	2,715	126	88	4	7/1	1-2	220.00
St. Helena Sanitarium and Hospital[4]	Sanitarium, Calif	G. K. Abbott	4,286	55	19	2	....	1	45.00
Community Hosp. of San Mateo County[4]	San Mateo, Calif	W. H. Murphy	2,602	...	...	7	7/1	1	200.00
Sonoma County Hospital[4]	Santa Rosa, Calif	H. M. Every	3,383	272	104	8	7/1	1	250.00
Boulder Colorado Sanitarium and Hospital	Boulder, Colo	R. T. Smith	2,481	53	9	1	....	1	......
	Colorado Spgs., Colo	H. M. Powell	3,778	114	12	2	7/1	1	210.00
natorium[4]	Colorado Spgs., Colo	J. J. Mahoney	3,255	111	30	2	2/1	1	150.00
	Pueblo, Colo	J. Wolf	3,924	137	14	2	....	1	......
	Bristol, Conn	R. A. Richardson	5,116	130	37	2	2/1	1	150.00
	Greenwich, Conn	J. A. McCreery	4,018	93	50	4	7/1	1	200.00
asualty Hospital	Washington, D. C.	J. R. Young	3,575	99	12	5	7/1	1	200.00
	Jacksonville, Fla	T. Z. Cason	1,817	37	10	1	....	1	......
	Alton, Ill	E. R. Quinn	5,923	90	39	4	Varies	1	150.00
	Alton, Ill	W. S. McGinnis	6,162	241	89	3	....	1	150.00
	Blue Island, Ill	F. A. Vincenti	4,685	145	44	2	7/1	1	225.00
	Chicago Heights, Ill	W. U. Miller	4,625	130	34	2	9/1	1	150.00
	Rock Island, Ill	J. P. Burgess	4,877	236	36	2	....	1	......
	Waukegan, Ill	J. E. Freeland	4,485	116	61	1	....	1	......
St. Francis Hospital	Beech Grove, Ind	O. H. Bakemeier	6,211	142	46	3	7/1	1	300.00
Clinic Hospital[4]	Bluffton, Ind	T. E. Caylor	2,033	75	38	3	....	1-3	100.00
Lafayette Home Hospital[4]	Lafayette, Ind	C. H. Ade	4,870	96	36	2	....	1	......
St. Luke's Methodist Hospital	Cedar Rapids, Iowa	R. M. Wray	7,371	245	40	2	4/1, 7/1	1	......
Jewish Hospital	Louisville, Ky	J. Frehling	3,304	159	27	2	....	1	......
E. A. Conway Memorial Hospital[4]	Monroe, La	J. Q. Graves	7,494	226	27	6	1/1, 7/1	1	275.00
Long Island Hospital	Boston	R. H. Morris	678	98	19	11	Varies	1	241.67
St. Anne's Hospital	Fall River, Mass	E. E. Hussey	3,684	78	27	2	....	1	......
Framingham Union Hospital[4]	Framingham, Mass.	T. J. Carnicelli	3,961	96	37	1	4/1	1	......
Malden Hospital	Malden, Mass	....	6,327	229	127	3	....	1	......
Cooley Dickinson Hospital	Northampton, Mass	L. N. Durgin	5,357	205	80	2	....	1	......
Tewksbury State Hospital and Infirmary[4]	Tewksbury, Mass	C. W. Houghton	1,335	354	71	4	....	1	......
Parkside Hospital	Detroit	J. A. Graham	1,345	65	2	2	7/1	1	......
Saratoga General Hospital	Detroit	E. J. Hammer	4,767	90	14	2	6/1	1	200.00
Cottage Hospital[4]	Grosse Pointe, Mich	W. G. Bernard	2,637	53	10	1	7/1	1	300.00
Mercy Hospital[4]		W. LeFevre	4,417	108	20	2	Varies	1	......
St. Joseph Mercy Hospital[4]		R. J. Cooper	9,522	303	111	6	....	1	......
Wyandotte General Hospital[4]		F. P. Maibauer	7,238	186	72	7	Varies	1	200.00
Hibbing General Hospital		T. A. Estrem	4,540	126	105	1	7/1	1	200.00
Eitel Hospital[4]		F. R. Hirshfield	4,431	133	39	2	1/1	1	100.00
Fairview Hospital[4]		H. D. Good	7,508	212	58	3	1/1	1	200.00

Numerical and other references will be found on page 89.

7. GENERAL RESIDENCY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Deaths	Autopsies	Asst. Res. and Residencies Offered[8]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Lutheran Deaconess Home and Hospital	Minneapolis	I. Sivertsen	5,825	141	46	1	1/1	1	175.00
Midway Hospital	St. Paul	G. Earl	5,389	119	50	2	1/1, 7/1	1	......
Northern Pacific Beneficial Assn. Hospital	St. Paul	B. I. Derauf	3,402	116	14	2	7/1	1-2	300.00
Alexian Brothers Hospital	St. Louis	T. Wayland	2,739	171	45	2	7/1	1	200.00
Missouri Pacific Hospital	St. Louis	O. B. Zeinert	6,911	175	63	4	....	1	......
Douglas County Hospital	Omaha	T. D. Boler	2,391	225	11	1	....	1	......
Elliot Hospital[4]	Manchester, N. H.	G. F. Dwinell	3,852	92	49	3	....	1	75.00
Sacred Heart Hospital	Manchester, N. H.	J. J. Powers	6,195	181	29	1	7/1	1	150.00
Irvington General Hospital	Irvington, N. J	M. F. Baker	3,651	195	59	3	Varies	1	225.00
Jewish Sanitarium and Hospital for Chronic Diseases[4]	Brooklyn	A. M. Rabiner	696	113	25	7	....	1	150.00
St. Joseph Hospital	Far Rockaway, N. Y	F. Herrman	3,513	127	33	4	....	1	......
Cornell University Infirmary	Ithaca, N. Y	N. S. Moore	1,890	0	0	4	....	1	......
Kingston Hospital[4]	Kingston, N. Y	D. S. Meyers	3,710	187	51	2	10/1	1	150.00
Beekman-Downtown Hospital	New York City	R. H. Kennedy	1,860	128	26	6	4/1, 10/1	1	100.00
Richmond Memorial Hospital[4]	Staten Island, N. Y	J. Klauber	2,186	115	21	4	....	1	......
Wyoming County Community Hospital[4]	Warsaw, N. Y	H. S. Martin	2,893	133	32	3	7/1	1	75.00
Mercy Hospital	Charlotte, N. C	O. D. Baxter	6,218	147	30	1	....	1	......
Highsmith Hospital[4]	Fayetteville, N. C	W. T. Rainey	5,819	171	4	2	7/1	1	......
Park View Hospital	Rocky Mount, N. C	E. S. Boice	3,697	133	8	2	1/1	1	100.00
Grace Hospital	Cleveland	A. E. Biddinger	2,461	31	12	2	....	1	200.00
Woman's Hospital[4]	Cleveland	I. H. Einsel	4,147	94	27	2	7/1	1	......
Fort Hamilton Hospital[4]	Hamilton, Ohio	C. Keller	2,908	94	35	2	Varies	1	......
Mansfield General Hospital	Mansfield, Ohio	W. M. Brown	7,032	216	40	2	6/1	1	......
Doctors Hospital[4]	Philadelphia	E. C. Murphy	4,143	103	44	2	....	1	125.00
Madison Rural Sanitarium and Hospital[4]	Madison Coll., Tenn	J. C. Gant	3,766	75	8	3	7/1	1	150.00
Medical Arts Hospital	Dallas, Texas	D. Brannin	5,119	82	23	1	....	1	100.00
All Saints Hospital[4]	Fort Worth, Texas	H. J. Shelley	5,435	151	53	3	7/1	1	250.00
St. Mary's Infirmary	Galveston, Texas	E. H. Klatt	4,800	161	29	2	....	1	......
Kings Daughters Hospital	Portsmouth, Va	J. A. Abbitt	5,574	239	59	1	....	1	......
Maryview Hospital	Portsmouth, Va	R. M. Cox	3,729	126	19	2	....	1	......
Grace Hospital	Richmond, Va	A. L. Herring, Sr.	4,723	92	14	2	6/1	1	......
Retreat for the Sick[4]	Richmond, Va	H. Warthen	4,670	104	52	2	7/1	1	100.00
St. Elizabeth's Hospital[4]	Richmond, Va	G. W. Horsley	1,964	29	20	2	7/1	1-2	100.00
St. Luke's Hospital[4]	Richmond, Va	R. Massie	3,655	59	19	1	7/1	1	......
Sheltering Arms Hospital[4]	Richmond, Va	W. R. Hill	1,640	49	20	1	5/1	1	100.00
Maynard Hospital	Seattle	W. Glasgow	4,578	97	40	2	4/1	1	200.00
St. Joseph Hospital	Vancouver, Wash	G. Johnson	5,869	98	44	2	7/1	1	100.00
McMillan Hospital	Charleston, W. Va	W. O. McMillan	4,855	37	13	2	4/1	1	200.00
St. Francis Hospital[4]	Charleston, W. Va	A. S. Brady, Jr.	6,381	124	26	4	....	1	200.00
St. Mary's Hospital	Clarksburg, W. Va	D. H. Lough	6,521	99	8	3	1/1	1	150.00
Fairmont General Hospital	Fairmont, W. Va	G. V. Morgan	5,603	88	22	4	1/1	1	......
St. Mary's Hospital[4]	Superior, Wis	C. W. Giesen	3,388	230	49	1	....	1	......

8. INTERNAL MEDICINE

The following services are approved by the Council and the American Board of Internal Medicine
Hospitals, 458; Assistant Residencies and Residencies, 2,880

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[8]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Army										
Letterman General Hospital★	San Francisco	M. M. Green	2,220	740	37	36	9	1/1	1-3	*n*
Fitzsimons General Hospital★	Denver	R. P. Johnson	4,034	1,875	51	38	12	1/1	1-3	*n*
Walter Reed General Hospital★	Washington, D. C.	J. S. Taylor	1,756	14,001	40	36	12	1/1	1-3	*n*
Oliver General Hospital★	Augusta, Ga	C. L. Leedham	3,163	9,717	5	4	6	1/1	1-3	*n*
Percy Jones General Hospital★	Battle Creek, Mich	F. R. Ostrander	5,152	16,288	29	29	2	1/1, 7/1	1	*n*
Brooke General Hospital★	San Antonio, Tex	J. G. Knauer	6,654	723	72	56	12	1/1	1-3	*n*
Madigan General Hospital★	Fort Lewis, Wash	A. H. Robinson	10,252	2,127	56	49	10	1/1	1-3	*n*
Gorgas Hospital★	Ancon, C.Z.	J. V. Brown	2,902	12,908	34	29	5	1/1	1-3	*n*
United States Navy										
U. S. Naval Hospital★	Long Beach, Calif	C. L. Andrews	6,122	17,591	204	181	4	Varies	2	*n*
U. S. Naval Hospital★	Oakland, Calif	....	5,226	....	160	142	3	....	1	*n*
U. S. Naval Hospital★	San Diego, Calif	I. L. Norman	3,072	10,004	62	46	3	Varies	1	*n*
U. S. Naval Hospital★	Great Lakes, Ill	H. H. Carroll	1,643	4,134	10	9	2	Varies	1	*n*
U. S. Naval Hospital★	Bethesda, Md	H. V. Packard	4,953	4,868	148	121	8	Varies	1-3	*n*
†U. S. Naval Hospital★	Chelsea, Mass	J. H. L. Heintzelman	......	....	.....	...	1	Varies	1	*n*
†U. S. Naval Hospital★	St. Albans, N. Y	H. L. Weaver	1,116	....	112	90	4	10/1	1-3	*n*
U. S. Naval Hospital★	Philadelphia	W. H. Schwartz	6,139	9,037	306	182	4	Varies	1	*n*
United States Public Health Service										
U. S. Marine Hospital★	San Francisco	R. K. Maddock	......	65,456	101	59	7	7/1	1-4	*n*
U. S. Marine Hospital★[4]	Baltimore	L. L. Terry	2,621	4,692	63	48	8	7/1	1-3	*n*
U. S. Marine Hospital★[4]	Stapleton, S.I., N. Y	R. H. Smith	2,225	12,337	78	39	9	7/1	1-3	*n*
†U. S. Marine Hospital★	Seattle, Wash	G. A. Abbott	2,622	9,614	109	80	5	7/1	1-3	*n*
Veterans Administration										
†Veterans Admin. Hospital	Los Angeles	R. O. Egeberg	3,729	152,728	343	236	25	7/1	1-3	$275.00
†Veterans Admin. Hospital	Oakland, Calif	E. R. Movitt	2,403	8,478	159	112	8	7/1	1-3	275.00
Veterans Admin. Hospital[4]	San Francisco	G. E. Hein	937	4,702	76	64	20	7/1	1-3	275.00
†Veterans Admin. Hospital	Van Nuys, Calif	F. W. Modern	876	582	11	10	28	1/1, 7/1	2-3	275.00
†Veterans Admin. Hospital	Fort Logan, Colo	T. P. Sears	1,150	....	.....	...	11	Varies	1-3	275.00
Veterans Admin. Hospital	Newington, Conn	P. Kunkel	1,990	....	81	58	15	7/1	1-3	275.00
†Veterans Admin. Hospital	Washington, D. C.	T. McP. Brown	647	383	25	21	10	7/1	1-3	275.00
†Veterans Admin. Hospital	Augusta, Ga	V. P. Sydenstricker	......	....	.....	...	1	7/1	1-3	275.00
†Veterans Admin. Hospital	Chamblee, Ga	M. Michael, Jr.	2,771	....	74	45	21	7/1	1-3	275.00
Veterans Admin. Hospital	Hines, Ill	L. A. Baker	5,245	....	226	121	47	1/1, 7/1	1-3	275.00
†Veterans Admin. Hospital	Indianapolis	R. E. Westmoreland	2,140	180	114	76	10	Varies	1-5	275.00
†Veterans Admin. Hospital	Des Moines, Iowa	D. J. Glomset	2,382	....	127	68	12	7/1	3-6	275.00
Veterans Admin. Hospital	Wadsworth, Kan	....	......	....	.....	...	30	Varies	3	275.00
†Veterans Admin. Hospital	Louisville, Ky	J. R. Gott, Jr.	......	....	18	...	28	7/1	1-3	275.00
†Veterans Admin. Hospital[4]	New Orleans, La	R. H. Turner	942	1,586	30	25	14	7/1	1-3	275.00
†Veterans Admin. Hospital	Fort Howard, Md	P. Padget	2,686	....	167	90	11	7/1	1-3	275.00
Veterans Admin. Hospital, W. Roxbury	Boston	T. A. Warthin	1,946	1,291	96	69	13	7/1	1-3	275.00
Veterans Admin. Hospital	Framingham, Mass	M. B. Strauss	2,165	....	83	50	19	7/1	1-3	275.00
Veterans Admin. Hospital	Dearborn, Mich	H. J. Kullman	2,540	6,284	159	90	15	7/1	2-3	275.00

Numerical and other references will be found on page 89 .

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Veterans Admin. Hospital	Minneapolis	R. E. Ebert	2,410	......	116	85	29	......	1	$275.00
†Veterans Admin. Hospital	Jefferson Bks., Mo.	E. D. Wall	700	......	109	15	24	Varies	1-3	275.00
†*Veterans Admin. Hospital*	Batavia, N. Y.	F. E. Kenny	1,359	1,466	77	34	7	7/1	1-3	275.00
†Veterans Admin. Hospital	Bath, N. Y.	A. S. Dowling	876	......	63	20	6	Varies	1-3	275.00
Veterans Admin. Hospital[4]	New York City	B. Straus	4,446	20,604	431	207	30	1/1, 7/1	1-3	275.00
†Veterans Admin. Hospital	Staten Island, N. Y.	S. E. King	700	5,390	18	13	12	7/1	1-3	275.00
†Veterans Admin. Hospital	Cleveland	N. P. Shumway	3,139	......	170	99	28	1/1, 7/1	1-3	275.00
Veterans Admin. Center	Dayton, Ohio	H. Warshawsky	780	78,074	54	20	10	Varies	1-3	275.00
†Veterans Admin. Hospital	Oklahoma City	W. Langston	......	1,800	63	29	6	7/1	1-3	275.00
Veterans Admin. Hospital	*Aspinwall, Pa.*	*R. Schwartz*	3,843	90	109	40	13	7/1	1-3	275.00
†Veterans Admin. Hospital	Columbia, S. C.	S. L. Zimmerman	3,062	......	147	60	12	1/1	1-3	275.00
†Veterans Admin. Hospital	Memphis, Tenn.	J. E. Cottrell	1,325	13,739	33	22	21	7/1	1-3	275.00
†Veterans Admin. Hospital	Nashville, Tenn.	R. France	......	......	......	......	24	7/1	1-3	275.00
Veterans Admin. Hospital	*Dallas, Texas*	*B. M. Lipschultz*	2,517	......	95	45	12	Varies	1	275.00
Veterans Admin. Hospital	McKinney, Texas	B. Friedman	1,406	......	53	38	16	Varies	1	275.00
†Veterans Admin. Hospital	Salt Lake City	J. C. Nunemaker	1,272	354	63	58	12	1/1, 7/1	1-3	275.00
Veterans Admin. Hospital	White River Jct., Vt.	A. Yeomans	1,776	155	40	30	7	7/1	1-3	275.00
†*Veterans Admin. Hospital*	Richmond, Va.	J. P. Williams	4,687	......	123	86	24	Varies	1-3	275.00
†Veterans Admin. Hospital	Milwaukee	M. Hardgrove	3,564	5,735	148	92	29	7/1	3	275.00
Nonfederal										
Jefferson-Hillman Hospital★[4]	Birmingham, Ala.	J. S. McLester	3,589	18,503	412	163	11	7/1	1-3	50.00
Norwood Hospital★[4]	Birmingham, Ala.	E. D. Lineberry	1,614	4,244	45	22	1	7/1	3	100.00
Employee's Hospital of the Tennessee Coal, Iron and Railroad Company★	Fairfield, Ala.	G. M. Hankins	1,089	20,514	106	40	5	7/1	1-3	200.00
†*St. Monica's Hospital and Health Center*★	*Phoenix, Ariz.*	R. S. Flinn	1,723	4,720	108	50	1	1/1	1-2	150.00
St. Joseph's Hospital★	Phoenix, Ariz.	R. S. Flinn	1,590	......	111	35	1	7/1	1-2	150.00
†St. Mary's Hospital and Sanatorium	Tucson, Ariz.	W. R. Hewitt	474	......	66	5	3	7/1	1	150.00
†Tucson Medical Center	Tucson, Ariz.	H. E. Thompson	475	......	42	25	1	7/1	1	200.00
Baptist State Hospital★	*Little Rock, Ark.*	*S. T. W. Cull*	2,634	......	274	31	2	1/1	1	125.00
†University Hospital★	Little Rock, Ark.	J. T. Roberts	626	7,834	91	44	4	7/1	1	50.00
San Joaquin General Hospital★	French Camp, Calif.	G. K. Wever	3,933	7,950	441	253	3	7/1	1-3	200.00
General Hospital of Fresno County★[4]	Fresno, Calif.	W. E. R. Schottstaedt	1,740	6,726	325	79	1	7/1	1-2	205.00
†Glendale Sanitarium and Hospital★	Glendale, Calif.	H. J. Hoxie	2,605	......	165	78	2	7/1	1-2	147.33
Seaside Memorial Hospital★	Long Beach, Calif.	J. E. Walker	2,885	......	225	66	2	7/1	1-2	150.00
California Hospital★[4]	Los Angeles	W. F. Wessels	2,085	1,005	215	94	2	7/1	2-3	100.00
Cedars of Lebanon Hospital★[4]	Los Angeles	M. Nathanson	2,681	57,120	316	122	2	7/1	1	50.00
Hospital of the Good Samaritan★[4]	Los Angeles	L. S. Chapman	2,093	8,152	195	67	3	7/1	3	200.00
Los Angeles County Hospital★[4]	Los Angeles	D. W. Greggs	18,021	31,783	2,298	800	18	Varies	3	165.00
†Queen of Angels Hospital★	Los Angeles	H. H. Thomson	1,924	1,536	......	74	1	7/1	1-3	100.00
St. Vincent's Hospital	Los Angeles	J. C. Ruddock	4,133	......	78	38	1	7/1	1	......
White Memorial Hospital★	Los Angeles	D. D. Comstock	1,468	25,640	83	48	4	......	1-3	147.33
Highland-Alameda County Hospital★[4]	Oakland, Calif.	F. Taylor	2,317	......	418	142	2	......	1-3	130.00
Permanc ★[4]	Oakland, Calif.	M. F. Collen	1,596	34,812	143	77	2	7/1	1	125.00
Samuel	*Oakland, Calif.*	F. Taylor	1,090	......	80	42	1	7/1	1	110.00
Collis P Memorial Hospital★	Pasadena, Calif.	R. F. Webb	1,913	548	215	129	2	1/1, 7/1	1	85.00
San Diego County General Hospital★	San Diego, Calif.	E. M. Fetter	1,427	5,675	313	88	2	7/1	1	187.00
Children's Hospital★[4]	*San Francisco*	D. Atkinson	294	......	10	7	1	7/1	1	50.00
Franklin Hospital★[4]	San Francisco	H. C. Shepardson	1,437	......	127	37	3	7/1	1	100.00
French Hospital★[4]	San Francisco	D. L. Wilbur	1,403	......	117	34	2	7/1	1	150.00
Mount Zion Hospital★[4]	San Francisco	A. L. Cohn and *J. J. Sampson*	1,421	......	138	72	5	7/1	1	50.00
St. Luke's Hospital★[4]	San Francisco	E. L. Bruck	2,842	2,851	184	58	2	7/1	1-2	100.00
†St. Mary's Hospital★	San Francisco	J. J. McGinnis	1,369b	......	......	......	1	4/1	1	100.00
San Francisco Hospital★[4]	San Francisco	L. H. Briggs	3,564	......	805	166	6	......	1	175.00
†Southern Pacific General Hospital★	San Francisco	R. E. Allen	1,721b	21,780b	......	......	2	7/1	1-3	125.00
Stanford University Hospitals★[4]	San Francisco	A. L. Bloomfield	2,004	20,151	123	64	14	7/1	1-2	50.00
University of California Hospital★[4]	San Francisco	W. J. Kerr	1,626	29,518	65	43	8	Varies	1	50.00
Santa Clara County Hospital★	San Jose, Calif.	P. Morton	......	......	......	......	3	7/1	1-2	180.00
Fairmont Hospital of Alameda County[4]	*San Leandro, Calif.*	F. Taylor	1,684	5,260	348	144	5	7/1	1	110.00
Santa Barbara Cottage Hospital★[4]	Santa Barbara, Calif.	D. H. McNamara	2,424	......	103	64	2	7/1	1	100.00
†Harbor General Hospital[4]	Torrance, Calif.	V. Maron	692	523	113	44	6	7/1	3-5	165.00
University of Colorado Medical Center										
Colorado General Hospital★[4]	Denver	J. J. Waring	1,294	24,124	156	120	12	1/1, 7/1	1-3	75.00
Denver General Hospital★[28]	Denver	J. J. Waring	1,790	1,507	360	132	2	7/1	1-2	50.00
†St. Joseph Hospital★	Denver	M. Katzman	1,388	......	86	16	4	7/1	1	50.00
Corwin Hospital★	Pueblo, Colo.	R. H. Finney	2,036	33,900	100	66	1	7/1	1	75.00
†Hartford Hospital★[4]	Hartford, Conn.	......	2,771	3,550	289	135	6	7/1	1-3	......
†New Britain General Hospital★	New Britain, Conn.	J. C. White	1,250	......	157	28	2	7/1	1-2	......
Grace-New Haven Community Hospital, Grace Unit★	New Haven, Conn.	T. Evans	1,125	......	116	23	3	7/1	3	40.00
New Haven Unit (University Service)★[4]	New Haven, Conn.	F. G. Blake	2,475	24,927	337	167	4	7/1	1	40.00
†Hospital of St. Raphael★	New Haven, Conn.	T. S. Evans and J. Mignone	1,224	775	169	40	2	7/1	1	75.00
†*Lawrence and Memorial Associated Hospitals*★[4]	*New London, Conn.*	A. Labensky	890b	......	......	......	1	Varies	1	......
Delaware Hospital★	Wilmington, Del.	L. B. Flinn	1,964	2,934	233	134	2	7/1	1	90.00
Memorial Hospital★	Wilmington, Del.	L. B. Flinn	1,206	1,117	116	52	2	7/1	1-2	110.00
Central Dispensary and Emergency Hospital★[4]	Washington, D. C.	J. Minor	1,743	2,385	152	75	2	7/1	1	50.00
Doctors Hospital★	Washington, D. C.	A. McNitt	1,942	......	147	99	3	7/1	1-2	100.00
Freedmen's Hospital★[4]	Washington, D. C.	J. B. Johnson	936	7,674	193	70	7	7/1	1-3	116.66
Gallinger Municipal Hospital★[4]	Washington, D. C.	H. Jeghers	2,562	......	494	238	14	7/1	1-2	75.00
Garfield Memorial Hospital★[4]	Washington, D. C.	B. F. Weems	2,244	2,108	154	64	5	7/1	1-3	50.00
Georgetown University Hospital★[4]	*Washington, D. C.*	*H. Jeghers*	1,472	......	112	54	11	7/1	1-3	50.00
George Washington University Hospital★	Washington, D. C.	P. F. Dickens	330	3,042	......	......	4	......	1	......
†Providence Hospital★[4]	Washington, D. C.	H. R. Schreiber and H. P. Argy	1,995	3,740	147	85	2	7/1	3	75.00
Duval County Hospital★	Jacksonville, Fla.	L. Limbaugh	780	......	149	70	3	7/1	1	125.00
Riverside Hospital[4]	Jacksonville, Fla.	T. Z. Cason	804b	7,395b	......	......	1	7/1	1	150.00
Jackson Memorial Hospital★	Miami, Fla.	......	10,397	8,763	482	209	7	7/1	1	60.00
†Crawford W. *Long Memorial Hospital*★	Atlanta, Ga.	L. Henry	1,823	1,260	141	52	3	7/1	1-2	75.00
Grady Memorial Hospital★[4]	Atlanta, Ga.	P. B. Beeson	2,083	53,287	415	235	13	7/1	1	20.00
Piedmont Hospital★[4]	Atlanta, Ga.	J. E. Paullin	909	......	43	26	1	7/1	1-2	75.00
St. Joseph Infirmary★	Atlanta, Ga.	J. H. Hines	1,150	1,396	75	34	3	7/1	1-3	60.00
University Hospital★[4]	Augusta, Ga.	V. P. Sydenstricker	2,034	3,994	240	47	7	7/1	1-3	40.00
Emory University Hospital★	Emory University, Ga.	P. B. Beeson	1,959	......	124	55	4	7/1	1	50.00
†Alexian Brothers Hospital★	Chicago	I. Volini	1,634	......	79	79	3	7/1	1	100.00
†American Hospital★[4]	Chicago	O. Porges	997b	10,237b	......	......	1	7/1	1	50.00
†Augustana Hospital★	Chicago	C. Hedberg	1,288	2,315	43	11	3	7/1	1-3	50.00
Cook County Hospital★[4]	Chicago	E. F. Foley	17,381	16,378	4,050	......	32	1/1, 7/1	1-3	27.50

Numerical and other references will be found on page 89

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[3]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
†Grant Hospital★	Chicago	A. A. VanderKloot	......	......	.....	...	1	7/1	1	$125.00
†Henrotin Hospital★[4]	Chicago	F. K. Hick	837	......	57	30	1	7/1	1	100.00
Hospital of St. Anthony de Padua★	Chicago	F. L. Foran	1,017	......	118	22	1	2/1, 6/1	1	100.00
†Illinois Central Hospital★	Chicago	......	1,070	......	26	8	1	9/1	1	150.00
Illinois Masonic Hospital★[4]	Chicago	R. Hayes	1,520	......	215	105	2	....	1	......
Lutheran Deaconess Home and Hospital★	Chicago	G. O. Solem	1,483	......	150	48	1	7/1	1	75.00
Mercy Hospital—Loyola University Clinics★	Chicago	G. F. O'Brien	2,462	14,782	155	49	5	7/1	3	25.00
Michael Reese Hospital★[4]	Chicago	M. W. Lev	2,590	9,086	219	122	6	7/1	3	25.00
Mount Sinai Hospital★[4]	Chicago	E. B. Freilich	1,733	12,825	181	51	3	7/1	1-3	50.00
Norwegian-American Hospital★[4]	Chicago	M. P. Gethner	1,366	......	121	37	1	11/1	1	25.00
Passavant Memorial Hospital★[4]	Chicago	W. Nadler	1,067	......	61	30	4	....	1	......
[illegible]	Chicago	S. H. Armstrong	3,199	10,320	162	102	7	....	3	25.00
[illegible]	Chicago	L. H. Berry	706	6,169	99	26	2	7/1	1-3	25.00
†Ravenswood Hospital★	Chicago	H. R. Marsh	1,389	......	156	98	1	7/1	1	50.00
Research and Educational Hospitals★[4]	Chicago	R. W. Kerton	567	11,936	43	37	5	7/1	1-3	55.00
[illegible]	Chicago	S. G. Plice	1,506	......	159	31	1	10/1	1½-3	125.00
[illegible]	Chicago	W. W. Shapiro	1,080	......	33	6	1	7/1	1	75.00
St. Joseph Hospital★	Chicago	L. E. Hines	1,479	1,285	96	47	2	4/1	1-3	75.00
St. Luke's Hospital★[4]	Chicago	N. C. Gilbert	3,190	498	203	120	8	7/1	1-3	25.00
University of Chicago Clinics★[4]	Chicago	L. T. Coggeshall	2,091	22,228	107	76	14	7/1	2-3	25.00
[illegible]	Chicago	P. S. Rhoads	2,461	......	126	73	9	1/1, 7/1	1-3+	25.00
[illegible]	Chicago	W. E. Gouwens	1,230	......	71	32	1	7/1	1	......
[illegible]	Evanston, Ill.	L. D. Snorf	2,216	8,080	178	153	5	....	3	50.00
St. Francis Hospital★	Evanston, Ill.	R. M. Jones	2,606	......	257	116	2	7/1, 10/1	1	75.00
†West Suburban Hospital★	Oak Park, Ill.	F. Tice	1,106	3,643	218	120	5	4/1, 7/1	1	50.00
St. Francis Hospital★[4]	Peoria, Ill.	J. E. McCorvie	2,255	16,569	240	90	2	7/1, 11/1	1-2	150.00
Indianapolis General Hospital★[4]	Indianapolis	C. J. Clark	1,846	22,500	350	140	12	7/1	1-3	70.00
Indiana University Medical Center★[4]	Indianapolis	J. O. Ritchey	2,026	9,551	182	120	5	7/1	2-3	33.33
[illegible]	Indianapolis	R. Moser	3,053	......	285	91	3	7/1	1-3	200.00
[illegible]	Des Moines, Iowa	J. T. Strawn	5,383	......	121	68	2	7/1	1-3	75.00
University Hospitals★[4]	Iowa City	W. M. Fowler	2,276	4,138	153	93	10	7/1	1	50.00
University of Kansas Hospitals★[4]	Kansas City, Kan.	R. H. Major	1,595	20,357	148	90	5	....	1-3	......
St. Francis Hospital★	Wichita, Kan.	F. J. McEwen	2,675	......	144	43	1	7/1	1	100.00
Wesley Hospital★[4]	Wichita, Kan.	G. F. Corrigan	2,177	......	120	44	1	9/1	1-3	150.00
†St. Joseph Hospital★	Lexington, Ky.	J. W. Scott	1,807	......	154	58	1	7/1	1-3	90.00
Louisville General Hospital★	Louisville, Ky.	J. W. Moore	1,346	22,585	260	75	11	71/	1	45.00
†St. Joseph Infirmary★	Louisville, Ky.	O. O. Miller	2,362	......	152	59	3	71/	1-3	75.00
Charity Hospital of Louisiana★[4]	New Orleans	......	5,958	66,375	831	250	25	7/1	1-3	25.00
†Foundation Hospital	New Orleans	T. Findley	1,097	12,055	34	27	18	1/1, 4/1	3	150.00
†Hotel Dieu, Sisters' Hospital★	New Orleans	......	1,502	......	169	28	1	7/1	1	100.00
Touro Infirmary★	New Orleans	S. B. Nadler	1,642	6,121	178	76	4	7/1	1	17.50
Southern Baptist Hospital★	New Orleans	P. H. Jones	2,561	......	192	51	1	7/1	1-3	150.00
†Shreveport Charity Hospital★	Shreveport, La.	M. D. Hargrove	2,318	11,363	251	124	4	7/1	1-3	60.00
†Maine General Hospital★	Portland, Me.	E. R. Blaisdell	1,258	781	139	58	2	....	1+	50.00
Baltimore City Hospital★[4]	Baltimore	C. H. Boyd	1,676	......	372	183	7	7/1	1	35.00
Church Home and Hospital★[4]	Baltimore	Z. R. Morgan	439	611	40	21	3	7/1	1	35.00
Franklin Square Hospital★[4]	Baltimore	W. H. Smith	630	1,442	35	12	2	7/1	1-4	75.00
Hospital for Women★[4]	Baltimore	W. Fort	501	3,135	29	7	3	7/1	1	85.00
Johns Hopkins Hospital★[4]	Baltimore	A. M. Harvey	3,898	62,675	228	150	9	....	1+	......
Maryland General Hospital★[4]	Baltimore	J. E. Legge	722	268	91	16	1	7/1	1-3	75.00
Mercy Hospital★	Baltimore	H. R. Peters	1,286	......	139	51	4	....	1	50.00
Provident Hospital and Free Dispensary★[4]	Baltimore	E. B. Jarrett	474	1,467	116	...	2	....	1	......
St. Agnes' Hospital★	Baltimore	L. P. Gundry	944	174	83	28	3	....	1	......
St. Joseph's Hospital★	Baltimore	F. J. Geraghty	986	1,210	130	35	3	7/1	2-3	50.00
Sinai Hospital★[4]	Baltimore	M. Sherry	1,458	......	189	96	5	7/1	1-3	25.00
South Baltimore General Hospital★[4]	Baltimore	G. McLean	720	1,030	63	10	3	7/1	1-3	75.00
Union Memorial Hospital★	Baltimore	W. A. Baetjer	......	......	.....	...	6	7/1	1	......
University Hospital★[4]	Baltimore	M. C. Pincoffs	1,682	5,422	180	94	5	7/1	1-2	75.00
West Baltimore General Hospital★[4]	Baltimore	L. A. M. Krause	1,023	700	.....	...	2	....	1	......
†Beverly Hospital★	Beverly, Mass.	A. E. Parkhurst	1,583	2,742	74	56	1	....	1-2	100.00
Beth Israel Hospital★	Boston	H. L. Blumgart	1,721	32,500	138	77	5	4/1	1	79.16
Boston City Hospital★[4]	Boston	W. R. Ohler	12,935	37,063	1,813	594	8	....	1+	66.67
Carney Hospital★	Boston	N. A. Welch	592	2,362	82	28	1	7/1	1	50.00
†Faulkner Hospital★	Boston	J. A. Halsted	750	......	71	27	1	10/1	1	75.00
Joseph H. Pratt Diagnostic Hospital[4]	Boston	S. Proger	3,341	4,112	16	8	11	7/1	1	83.33
Lahey Clinic[4]	Boston	L. M. Hurpthal	......	......	.....	...	20	....	1-2	......
Massachusetts General Hospital★[4]	Boston	J. H. Means	3,211b	21,423b	.....	...	47	7/1	1-3	41.66
Massachusetts Memorial Hospitals★[4]	Boston	C. S. Keefer	1,135	4,840	58	47	8	....	1	50.00
†New England Deaconess Hospital[4]	Boston	H. F. Root	......	......	.....	...	4	....	1-3	......
Peter Bent Brigham Hospital★[4]	Boston	G. W. Thorn	2,177	24,258	203	126	7	Varies	1	......
†Mount Auburn Hospital★[4]	Cambridge, Mass.	J. H. Townsend	1,343	3,130	128	...	2	7/1	1	50.00
Truesdale Hospital★	Fall River, Mass.	W. Mason	803	......	44	24	1	1/1, 7/1	1	50.00
†Malden Hospital	Malden, Mass.	E. G. Thorp	1,728b	......	.....	...	1	7/1	1	100.00
†[illegible]	Northampton, Mass.	J. E. Hayes	1,602	......	.....	...	1	7/1	1	50.00
[illegible]	Salem, Mass.	S. N. Gardner	1,242	377	144	...	1	7/1	1	50.00
†[illegible]	Worcester, Mass.	O. H. Stansfield	1,576	876	112	46	1	....	1-2	100.00
[illegible]	Worcester, Mass.	J. J. Dumphy	1,987	......	131	46	3	7/1	1-3	41.67
[illegible]	Worcester, Mass.	G. W. Ballantyne	1,507	4,803	342	118	2	4/1	1	50.00
†St. Joseph's Mercy Hospital★	Ann Arbor, Mich.	H. H. Riecker	1,196	1,497	109	36	2	1/1, 7/1	1-3	125.00
[illegible]	Ann Arbor, Mich.	C. C. Sturgis	3,244	20,855	234	151	18	7/1	1-5	111.40
[illegible]	Detroit	L. E. Heavner	494	10,500	23	11	1	7/1	1	100.00
[illegible]	Detroit	G. W. Myers	3,352	5,532	691	263	18	7/1	1+	167.00
[illegible]	Detroit	L. T. Colvin	2,945	14,869	240	104	6	7/1	1-3	75.00
[illegible]	Detroit	R. C. Moehlig	2,540	12,749	.....	...	12	7/1	1	118.00
[illegible]	Detroit	F. J. Sladen	4,735	129,995	210	116	36	7/1	1-5	200.00
[illegible]	Detroit	H. L. Smith	2,115	......	264	81	3	7/1	1-3	100.00
Providence Hospital★	Detroit	R. Weyher	2,191	......	217	113	3	7/1	1-3	140.00
St. Mary's Hospital★[4]	Detroit	W. J. Wilson, Jr.	1,789	......	161	85	1	7/1	3	......
Woman's Hospital★[4]	Detroit	B. I. Johnstone	......	......	.....	...	1	7/1	1-4	100.00
Wayne County G[illegible]	Eloise, Mich.	M. R. McQuiggan	10,659	30,749	786	254	11	7/1	1	216.25
[illegible]	Flint, Mich.	M. S. Chambers	3,020	......	313	104	2	7/1	3	135.00
[illegible]	Grand Rapids, Mich.	C. Beeman	732	......	87	46	3	7/1	1-3	175.00
[illegible]erworth Hospital★	Grand Rapids, Mich.	C. V. Crane	1,384	354	163	70	2	7/1	3	100.00
Highland Park General Hospital★	Highland Park, Mich.	L. T. Crane	1,191	......	97	42	3	7/1	1-3	100.00
†Pontiac General Hospital★	Pontiac, Mich.	C. R. Gatley	856	......	100	24	2	7/1	1-3	75.00
†Saginaw General Hospital★	Saginaw, Mich.	S. Yntema	2,100	450	154	66	1	7/1	3	75.00
St. Mary's Hospital★	Duluth, Minn.	R. Bardon	1,464	......	132	79	1	7/1	1	75.00
Minneapoli[illegible]	Minneapolis	G. E. Fahr	2,389	10,699	412	159	7	1/1, 7/1	1-3	115.00
†Northweste[illegible]	Minneapolis	J. C. Miller	1,874	......	138	70	1	7/1	1	150.00
†St. Barnabas Hospital★	Minneapolis	L. R. Scherer	1,308	......	136	85	1	1/1, 7/1	1	100.00
University Hospitals★[4]	Minneapolis	C. J. Watson	892	26,496	97	70	58	7/1	1-3	115.00

Numerical and other references will be found on page 89

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[5]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[3]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Mayo Foundation	Rochester, Minn.	R. M. Wilder	(See page 89)		.....	...	120	....	1	.....
Ancker Hospital★	St. Paul	A. Hoff	1,544	11,561	273	189	5	4/1	1	$ 91.50
Charles T. Miller Hospital★	St. Paul	E. T. F. Richards and C. N. Hensel	2,867	8,281	115	65	3	Varies	1-3	115.00
St. Louis County Hospital★	Clayton, Mo.	R. O. Muether	1,634	20,544	190	88	4	7/1	1-3	80.00
Kansas City General Hospital No. 1★	Kansas City, Mo.	D. A. William	2,516	16,302	471	240	8	7/1	2-3	50.00
Menorah Hospital★[1]	Kansas City, Mo.	A. Sophian	1,468	....	92	25	1	7/1	1	200.00
Research Hospital★[1]	Kansas City, Mo.	R. C. Davis	1,786	2,201	151	98	2	7/1	1-3	100.00
St. Joseph Hospital★	Kansas City, Mo.	D. A. Williams	.....	....	.....	...	1	....	1-3	100.00
St. Mary's Hospital★[4]	Kansas City, Mo.	H. M. Parker	1,069	....	108	59	1	7/1	1	100.00
Barnes Hospital★[1]	St. Louis	W. B. Wood	3,078	24,572	206	151	29	7/1	1-3	25.00
De Paul Hospital	St. Louis	E. P. Buddy	1,426	678	169	31	2	7/1	3	60.00
Homer G. Phillips Hospital★[4]	St. Louis	H. Bulger	1,628	8,188	491	85	5	7/1	1	50.00
Jewish Hospital★[1]	St. Louis	J. E. Cook	2,977	....	200	61	4	....	1+	50.00
Missouri Baptist Hospital★	St. Louis	J. L. Horner	2,126	....	.....	...	5	7/1	1-3	60.00
Missouri Pacific Hospital	St. Louis	W. P. Elmer	.....	....	.....	...	3	7/1	1-3	125.00
St. Anthony's Hospital★	St. Louis	R. V. Powell	1,601	....	67	31	1	3/1	1	50.00
St. John's Hospital★	St. Louis	C. H. Neilson	1,895	1,675	353	60	3	7/1	1-3	50.00
St. Louis City Hospital★[4]	St. Louis	....	4,287	6,449	829	338	13	7/1	1	95.00
St. Luke's Hospital★[4]	St. Louis	D. M. Skilling, Jr.	1,133	....	.....	...	1	7/1	1	75.00
St. Mary's Group of Hospitals★	St. Louis	R. A. Kinsella	2,602	34,789	221	95	9	Varies	3	35.00
†Montana Deaconess Hospital★	Great Falls, Mont.	F. R. Schemm	1,513	....	101	55	1	7/1	1-2	200.00
Creighton Memorial St. Joseph's Hospital★[4]	Omaha	A. Sachs	4,818	7,797	256	96	1	7/1	1-3	100.00
†Nebraska Methodist Hospital★[4]	Omaha	E. J. Kirk	1,756	....	86	45	1	7/1	1	100.00
†University of Nebraska Hospital★[4]	Omaha	H. C. Lueth	514	....	40	38	7	7/1	1-3	75.00
Mary Hitchcock Memorial Hospital★[4]	Hanover, N. H.	N. T. Milliken	1,020	12,000	.....	...	3	Varies	1-3	175.00
Atlantic City Hospital★	Atlantic City, N. J.	D. W. Scanlan	1,980	7,874	320	69	1	7/1	1	.....
†Hackensack Hospital★[4]	Hackensack, N. J.	L. W. Black	1,732	6,241	238	...	1	7/1	1	100.00
Jersey City Hospital★[4]	Jersey City, N. J.	T. J. White	6,671	32,601	1,016	245	5	Varies	1-5	35.00
Burlington County Hospital★	*Mount Holly, N. J.*	P. S. MacNeal	495	444	64	28	1	7/1	1-2	100.00
†Newark Beth Israel Hospital★	Newark, N. J.	H. Goldberg	1,223	6,715	184	36	2	1/1	2	25.00
†St. Francis Hospital★	Trenton, N. J.	....	2,190b	....	.....	...	1	....	1	100.00
Albany Hospital★[1]	Albany, N. Y.	L. W. Gorham	1,886	5,062	173	95	4	7/1	1	41.66
Binghamton City Hospital★[1]	Binghamton, N. Y.	H. W. Davis	3,355	....	257	77	7	7/1	1-3	60.00
†Beth-El Hospital★[1]	Brooklyn	M. J. Dattelbaum	828	11,830	101	20	3	1/1, 7/1	1-2	100.00
Brooklyn Hospital★[1]	Brooklyn	E. P. Maynard	2,191	18,114	170	62	3	7/1	1-2	25.00
Coney Island Hospital★[1]	Brooklyn	T. J. Longo	1,571	16,995	284	55	2	7/1	1	70.00
Cumberland Hospital★[1]	Brooklyn	J. J. Guttman	1,583	18,086	213	56	2	7/1	1	70.00
Greenpoint Hospital★[4]	Brooklyn	A. Klein	1,183	14,335	225	26	2	7/1	1	120.00
†Israel Zion Division★	Brooklyn	....	(See Maimonides)							
Jewish Hospital★[1]	Brooklyn	....	1,671	25,790	190	60	3	1/1, 4/1	1	30.00
Kings County Hospital★	Brooklyn	H. Feinblatt and W. Dock	15,474	29,395	2,561	340	13	7/1	1-2	50.00
Long Island College Hospital★[4]	Brooklyn	J. H. Crawford	1,718	10,267	143	50	5	7/1	1-2	25.00
Maimonides Hospital †Israel Zion Division★	Brooklyn	J. Rosenthal	1,301	5,955	174	24	4	....	1	50.00
Methodist Hospital★[4]	Brooklyn	A. T. Mays and I. L. Cabot	1,328	4,551	151	63	5	7/1	2-3	25.00
Norwegian Lutheran Deaconesses' Home and Hospital★[4]	Brooklyn	....	.....	....	.....	...	1	....	1	.....
St. Catherine's Hospital★	Brooklyn	....	971	1,753	166	25	2	7/1	1-3	100.00
Buffalo General Hospital★[4]	Buffalo	J. H. Talbott	2,181	13,515	239	113	10	7/1	1-2	25.00
†Deaconess Hospital★	Buffalo	....	1,990	841	232	69	1	....	1-3	60.00
Edward J. Meyer Memorial Hospital★[4]	Buffalo	D. K. Miller	3,370	9,021	394	208	14	7/1	1-4	100.00
Millard Fillmore Hospital★	Buffalo	J. F. Painton	1,482	....	145	55	5	....	1-4	50.00
†Clifton Springs Sanitarium and Clinic[4]	Clifton Springs, N. Y.	B. A. Watson	2,605	2,152	65	40	2	7/1	1-3	50.00
Mary Imogene Bassett Hospital★	*Cooperstown, N. Y.*	J. Bordley	729	3,775	.....	...	3	7/1	1-3	83.33
Meadowbrook Hospital★[4]	Hempstead, N. Y.	E. C. Jessup and B. R. Allison	900	....	101	52	2	7/1	1-2	115.00
Queens General Hospital★[4]	Jamaica, N. Y.	J. R. Reuling	4,781	14,721	968	363	8	7/1	3	70.00
Charles S. Wilson Memorial Hospital★[4]	Johnson City, N. Y.	E. M. Jones	2,497	....	199	65	3	7/1	1-3	200.00
†Mount Vernon Hospital★	Mount Vernon, N. Y.	P. Reznikoff	1,602	469	179	46	2	7/1	1-2	125.00
New Rochelle Hospital★	New Rochelle, N. Y.	C. A. Read	1,761	1,194	214	51	2	7/1	1-2	100.00
Bellevue Hospital, Div. I—Columbia U.★[4]	New York City	D. W. Richards, Jr.	2,840b	14,500b	291b	81b	5	7/1	1	70.00
Bellevue Hospital, Div. II—Cornell U.★[4]	New York City	J. E. Deitrick	2,730b	21,000b	232b	71b	4	7/1	1	70.00
Bellevue Hospital, Div. III—N. Y. Univ.★[4]	New York City	W. S. Tillett	3,200b	18,124b	290b	127b	11	7/1	1	70.00
Bellevue Hospital, Div. IV—Open Div.★[4]	New York City	C. H. Nammack	2,458b	17,839b	248b	72b	4	7/1	1	70.00
†Beth Israel Hospital★[4]	New York City	A. M. Fishberg	1,036	9,427	106	33	5	7/1	1-2	50.00
Bronx Hospital★[4]	New York City	H. Wessler	1,851	8,106	188	57	5	7/1	1-3	75.00
†Doctors Hospital[1]	New York City	....	1,422	....	86	34	3	1/1, 7/1	1+	200.00
Flower and Fifth Avenue Hospitals★[4]	New York City	L. J. Boyd	1,001	5,323	88	27	4	6/1	1	None
Fordham Hospital★[4]	New York City	J. J. McGowan	.....	....	.....	...	4	7/1	1	70.00
Goldwater Memorial Hospital★[4]	New York City	M. Rosenbluth D. Beck	1,759	1,654	295	130	29	7/1	1	70.00
Gouverneur Hospital★[4]	*New York City*	*T. Sanders*	*1,213*	*28,807*	*354*	*44*	4	7/1	1	70.00
Harlem Hospital★[4]	New York City	O. LaRotonda	3,723	41,030	416	78	7	1/1, 7/1	1	70.00
Lenox Hill Hospital★[4]	New York City	J. M. Steele and A. L. Garbat	1,197	....	129	53	2	Varies	1-3	50.00
Lincoln Hospital★[4]	New York City	K. Taylor	3,228	20,435	590	156	9	7/1	1-3	60.00
[illegible]	New York City	L. F. Craver	296b	7,278b	.....	...	1	Varies	1-3	15.00
[illegible]	New York City	L. J. Boyd	2,927	13,156	484	96	9	7/1, 10/1	1	120.00
[illegible] onic Diseases★[4]	New York City	L. Leiter	909	3,276	167	75	7	1/1, 7/1	1	50.00
[illegible]	New York City	E. Flood and S. Biloon	3,553	7,364	617	72	8	7/1	2	60.00
[illegible]	New York City	....	.....	....	.....	...	21	Varies	1-2	.....
New York City Hospital★[4]	New York City	J. Carroll and W. L. Whittemore	2,884	26,659	366	131	8	7/1	1	70.00
New York Hospital★[4]	New York City	D. P. Barr	1,967	17,098	155	118	30	1/1, 7/1	1-5	25.00
New York Infirmary★[4]	New York City	M. E. Manter	300	4,021	12	8	1	7/1	1+	75.00
New York Polyclinic Medical School and Hospital★[1]	New York City	J. Carroll	1,415	5,665	86	14	2	7/1	2	25.00
New York Post-Graduate Medical School and Hospital★[4]	New York City	W. G. Lough	1,489	19,065	111	45	2	7/1	1	30.00
[illegible]	*New York City*	R. F. *Loeb*	5,000	45,219	271	...	16	....	1-2	41.66
[illegible]	New York City	H. F. Shattuck and J. M. Freston	2,301	10,527	285	87	8	7/1	1-2	70.00
†St. Clare's Hospital★[4]	New York City	J. P. Croce	2,046	2,746	96	57	3	7/1	2-3	25.00
[illegible]	New York City	J. H. Keating	2,727	31,421	223	86	9	Varies	1-3	50.00
[illegible]	New York City	F. W. Baldwin	3,173	4,313	453	187	6	7/1	1-3	50.00
[illegible]	New York City	....	1,008	11,260	120	37	2	7/1	1	75.00
[illegible]	Rochester, N. Y.	C. Boller	1,080	2,301	141	70	5	7/1	1	41.66
†Highland Hospital★	*Rochester, N. Y.*	E. B. Soble	1,300	....	.....	...	1	7/1	1-2	100.00

Numerical and other references will be found on page 89

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[5]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Rochester General Hospital★[4]	Rochester, N. Y.	L. F. Allen	1,667	5,630	211	145	3	7/1	1-3	$ 70.00
St. Mary's Hospital★[4]	Rochester, N. Y.	J. B. Duffy	728	......	55	27	6	7/1	1-2	125.00
Strong Memorial—Rochester Municipal Hospitals★[4]	Rochester, N. Y.	W. S. McCann	3,015	20,057	401	274	17	7/1	1-4	41.66
†Ellis Hospital★[4]	Schenectady, N. Y.	G. M. Clowe	3,006	......	201	52	2	7/1	1-3	100.00
Hospital of the Good Shepherd★[4]	Syracuse, N. Y.	R. Lyons	1,194	......	152	78	4	7/1	1	125.00
Grasslands Hospital★[4]	Valhalla, N. Y.	M. D. Touart	809	3,607	157	89	3	7/1	1-3	75.00
†White Plains Hospital★[4]	White Plains, N. Y.	E. W. Weber	......	......	...	..	1	7/1	1-3	100.00
Charlotte Memorial Hospital★[4]	Charlotte, N. C.	T. W. Baker	1,851	2,589	109	51	2	7/1	1-3	75.00
Duke Hospital★[4]	Durham, N. C.	E. A. Stead	3,161	20,151	129	82	22	7/1	1	83.33
Watts Hospital★	Durham, N. C.	W. R. Stanford	2,456	822	126	36	2	7/1	1-2	50.00
James Walker Memorial Hospital★[4]	Wilmington, N. C.	D. R. Murchison	2,379	4,382	135	32	1	7/1	1-2	100.00
City Memorial Hospital★	Winston-Salem, N. C.	S. F. Pfohl	1,007b	984	8	4	2	7/1	1-2	75.00
North Carolina Baptist Hospital★[4]	Winston-Salem, N. C.	G. T. Harrell	1,720	7,520	84	40	15	......	1-3	...
Bismarck Evangelical Hospital	Bismarck, N. D.	R. B. Radl	1,074	110	84	27	1	Varies	1	115.00
†St. Luke's Hospital★	Fargo, N. D.	W. C. Nichols	1,832	1,567	117	43	1	7/1	1	100.00
Trinity Hospital★	Minot, N. D.	P. H. Rowe	549	14,413	.....	...	1	......	1	150.00
City Hospital★	Akron, Ohio		3,013	....	334	165	3	7/1	1-3	100.00
†Peoples Hospital★[4]	Akron, Ohio	R. F. Jukes	1,265	1,058	97	31	2	7/1	1-2	100.00
St. Thomas Hospital★	Akron, Ohio	J. E. Monnig	1,835	1,161	112	31	2	7/1	1	125.00
†Aultman Hospital★[4]	Canton, Ohio	H. W. Beck	3,153	....	222	128	4	7/1	1-4	75.00
Mercy Hospital★	Canton, Ohio	J. D. O'Brien	2,401	....	129	46	2	7/1	1-3	100.00
Christ Hospital★	Cincinnati	D. A. Tucker	1,382	6,056	141	53	4	7/1	1-3	75.00
Cincinnati General Hospital★[4]	Cincinnati	M. A. Blankenhorn	2,380	29,063	659	301	29	7/1	1-3	.....
Deaconess Hospital★[4]	Cincinnati	L. B. Owens	3,256	....	131	29	1	1/1	1	125.00
Good Samaritan Hospital★	Cincinnati	G. C. Bishop	4,064	4,338	210	49	4	7/1	1-2	105.00
Jewish Hospital★[4]	Cincinnati	R. C. Rothenberg	5,176	....	252	126	6	7/1	1-3	75.00
City Hospital★[4]	Cleveland	R. W. Scott	2,456	19,517	495	271	16	7/1	1-4	60.00
Cleveland Clinic Foundation Hospital[1]	Cleveland	R. L. Haden	918	65,691	39	38	17	7/1	1-3	100.00
Mount Sinai Hospital★[4]	Cleveland	H. S. Applebaum	1,338	4,823	124	49	3	7/1	1	100.00
St. Alexis Hospital★	Cleveland	H. V. Paryzek	2,452	3,108	208	69	1	7/1	1	90.00
St. John's Hospital★	Cleveland	C. E. Steyer	1,574	396	128	34	2	7/1	1+	.....
St. Luke's Hospital★	Cleveland	L. Taylor	2,290	16,939	101	101	4	7/1	3	60.00
St. Vincent Charity Hospital★	Cleveland	C. S. Stone	1,166	12,301	55	20	3	7/1	1+	75.00
University Hospitals★[4]	Cleveland	J. T. Wearn	3,568	16,538	321	...	23	7/1	1+	25.00
†Mount Carmel Hospital★	Columbus, Ohio	P. T. Knies	1,340	....	121	44	1	7/1	1-3	110.00
St. Francis Hospital★	Columbus, Ohio	B. K. Wiseman	1,214	....	166	47	3	....	1	.....
Starling-Loving University Hospital★[4]	Columbus, Ohio	B. K. Wiseman	1,685	14,850	44	28	11	7/1	1-3	50.00
White Cross Hospital★	Columbus, Ohio	W. F. Millhon	1,565	......	198	66	3	7/1	1	100.00
Miami Valley Hospital★	Dayton, Ohio	R. K. Bartholomew	1,986b	1,399b	.....	.	2	7/1	3	75.00
Huron Road Hospital★[4]	East Cleveland, Ohio	E. A. Marshall	892	2,451	101	34	1	7/1	2	80.00
†Lakewood Hospital★	Lakewood, Ohio	J. T. Ledman	908	1,641	109	48	2	7/1	1	100.00
Maumee Valley Hospital★	Toledo, Ohio	N. Morris	1,826	9,093	294	102	3	7/1	1	150.00
St. Vincent's Hospital★[4]	Toledo, Ohio	C. J. Czarnecki	2,325	2,539	175	89	1	7/1	1-3	100.00
Toledo Hospital★[4]	Toledo, Ohio	J. L. Stifel	2,721	545	141	71	3	7/1	1-3	125.00
St. Elizabeth's Hospital★[4]	Youngstown, Ohio	M. W. Neidus	2,470	1,150	218	54	1	7/1	1-3	125.00
Youngstown Hospital★	Youngstown, Ohio	W. H. Bunn	2,285	286	167	67	2	7/1	1-3	100.00
St. Anthony Hospital★	Oklahoma City	P. M. McNeill	2,015	....	210	53	1	7/1	2	75.00
University Hospitals★	Oklahoma City	R. H. Bayley	750	7,624	102	39	5	7/1	1-3	35.00
†Hillcrest Memorial Hospital★[4]	Tulsa, Okla.	J. D. Markland	1,809	....	137	30	3	1/1	1-3	100.00
†St. John's Hospital★	Tulsa, Okla.	S. Goodman	1,449	......	125	19	1	Varies	1-4	125.00
†Emanuel Hospital★[4]	Portland, Ore.	E. H. Berger	1,532	....	150	75	2	7/1	1-3	75.00
Good Samaritan Hospital★	Portland, Ore.	C. P. Wilson	2,454	....	148	52	1	7/1	1	75.00
†Providence Hospital★	Portland, Ore.	M. Margason	2,999	....	218	103	1	7/1	1-3	75.00
†St. Vincent's Hospital	Portland, Ore.	L. L. Selling	461b	....	.....	...	6	7/1	1-3	75.00
University of Oregon Medical School Hospitals and Clinics★[4]	Portland, Ore.	H. P. Lewis	1,687	19,539	288	152	5	7/1	3	75.00
Abington Memorial Hospital★	Abington, Pa.	J. T. Beardwood	1,305	2,647	117	41	2	7/1	2	50.00
Bryn Mawr Hospital★	Bryn Mawr, Pa.	W. W. Dyer	400	.....	48	29	2	10/1	1	75.00
George F. Geisinger Memorial Hospital★[4]	Danville, Pa.	W. J. Stainsby	2,086	15,255	125	69	2	....	1-2	75.00
†Hamot Hospital★	Erie, Pa.	T. P. Tredway	939	612	109	40	1	7/1	1	100.00
†Episcopal Hospital★[4]	Philadelphia	J. H. Arnett and G. E. Farrar	1,366	7,272	44	...	3	....	1	50.00
Germantown Dispensary and Hospital★	Philadelphia	....	1,735	6,144	117	89	1	7/1	1-2	50.00
Graduate Hospital of the Univ. of Pennsylvania★	Philadelphia	G. M. Piersol	1,094	14,248	86	36	3	7/1	1-2	......
Hahnemann Hospital★[4]	Philadelphia	G. H. Wells	2,456	....	332	92	4	....	1-3	50.00
Hospital of the Univ. of Pennsylvania★[4]	Philadelphia	F. C. Wood	3,058	....	214	142	15	7/1	1-3	25.00
Hospital of the Woman's Medical College of Pennsylvania★[4]	Philadelphia	W. G. Leaman	534	5,207	43	14	2	7/1	1	50.00
Jefferson Medical College Hospital★	Philadelphia	H. A. Reiman	2,697	11,099	198	110	9	....	1	......
Jewish Hospital★[4]	Philadelphia	....	1,793	11,754	223	119	6	7/1	1-2	50.00
†Lankenau Hospital★	Philadelphia	F. L. Hartmann	782	1,289	88	37	2	7/1	1-3	50.00
Mount Sinai Hospital★[4]	Philadelphia	A. I. Rubenstone and T. H. Mendell	2,036	16,321	153	91	3	7/1	1-2	50.00
Pennsylvania Hospital★	Philadelphia	G. G. Duncan and T. M. McMillan	2,128	6,770	221	109	7	1/1, 7/1	1-3	20.00
Philadelphia General Hospital★[4]	Philadelphia	....	4,634	.....	1,032	...	13	....	1-3	70.00
Presbyterian Hospital★[4]	Philadelphia	T. G. Schnabel	1,561b	2,409b	.....	...	2	....	2	50.00
[illegible]	Philadelphia	R. A. Kern	1,799	8,123	149	64	11	7/1	3	50.00
[illegible]	Philadelphia	....	414	3,076	13	6	1	7/1	1	50.00
[illegible]	Pittsburgh	E. W. Willetts	707	8,069	66	21	2	9/1	2	100.00
Elizabeth Steel Magee Hospital[4]	Pittsburgh	J. D. Heard	1,186	399	90	25	3	7/1	1-3	41.67
Mercy Hospital★[4]	Pittsburgh	W. W. G. Maclachlan	1,656	4,394	170	61	3	9/1	1-3	100.00
Montefiore Hospital★[4]	Pittsburgh	L. Wechsler and L. H. Crisp	1,314	2,598	173	67	4	7/1	1-2	50.00
Presbyterian Hospital★[4]	Pittsburgh	A. H. Colwell	1,869	....	119	41	4	....	1-5	41.67
St. Francis Hospital★[4]	Pittsburgh	....	1,832	2,302	199	50	4	7/1	3	110.00
Western Pennsylvania Hospital★	Pittsburgh	F. A. Evans	2,864	3,065	250	48	2	....	1	.....
Reading Hospital★[4]	Reading, Pa.	R. M. Alexander	970	877	194	83	1	7/1	1	100.00
Robert Packer Hospital★	Sayre, Pa.	S. D. Conklin	2,898	5,823	126	50	5	7/1	1-3	150.00
Wilkes-Barre General Hospital★[4]	Wilkes-Barre, Pa.	G. E. Baker	2,926	5,094	242	46	1	9/1	1	100.00
†York Hospital★	York, Pa.	H. B. Thomas	1,101	614	256	71	1	7/1	1	200.00
Rhode Island Hospital★	Providence, R. I.	A. M. Burgess	2,375	....	354	152	6	....	1-3	50.00
Roper Hospital★	Charleston, S. C.	W. H. Kelley	1,055	4,557	126	37	5	7/1	1-4	25.00
Baroness Erlanger Hospital★	Chattanooga, Tenn.	C. R. Thomas	2,764	2,866	307	88	3	7/1	1	90.00
[illegible]	Knoxville, Tenn.	R. B. Wood	1,356	2,489	204	36	1	7/1	1-2	25.00
[illegible]	Memphis, Tenn.	C. H. Sanford	2,031	20,126	409	265	11	7/1	1	......
[illegible] of Meharry Medical College★	Nashville, Tenn.	W. H. Grant	907	3,119	104	25	3	7/1	1-3	75.00
Nashville General Hospital★	Nashville, Tenn.	T. Frist	1,214	8,931	128	57	4	7/1	1-2	40.00
St. Thomas Hospital★	Nashville, Tenn.	W. R. Cate	1,263	....	104	40	1	7/1	1-2	75.00

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Vanderbilt University Hospital★[4]	Nashville, Tenn.	H. J. Morgan	2,369	23,124	142	70	5	7/1	1	......
Baylor University Hospital★[4]	Dallas, Texas	H. M. Winans	1,779	2,524	164	58	4	7/1	1-3	$ 50.00
†Methodist Hospital★	Dallas, Texas	R. M. Barton	1,870	1,115	135	28	2	7/1	1	75.00
Parkland Hospital★[4]	Dallas, Texas	T. Harrison	1,824	17,292	206	97	5	7/1	1-3	50.00
†St. Paul's Hospital★	Dallas, Texas	T. M. Kirksey	2,459	316	194	56	3	7/1	1-2	100.00
Harris Memorial Methodist Hospital★	Fort Worth, Texas	W. S. Horn	2,462	1,564	143	51	2	7/1	1-3	100.00
John Sealy Hospital (Univ. of Texas Medical Branch)★[4]	Galveston, Texas	C. T. Stone	1,501	11,050	189	123	11	....	1-3	50.00
Hermann Hospital★[4]	Houston, Texas	J. A. Greene	1,542	4,278	105	48	6	....	1-3	50.00
Jefferson Davis Hospital★[1]	Houston, Texas	S. McDaniel	2,289	12,027	416	104	3	7/1	1-3	50.00
Memorial Hospital	Houston, Texas	....	...	......	.....	...	3	7/1	1-3	100.00
Methodist Hospital★[4]	Houston, Texas	H. W. Cumming	890	242	83	38	2	7/1	1-3	75.00
Southern Pacific Hospital[1]	Houston, Texas	M. D. Levy	1,025	13,862	20	6	3	....	1-3	125.00
Scott and White Hospital★	Temple, Texas	V. M. Longmire	1,039	......	59	26	18	....	1-3	150.00
Wichita Falls Clinic Hospital★	Wichita Falls, Texas	O. B. Kiel	757	.....	22	11	1	7/1	1-2	150.00
Dr. W. H. Groves Latter-Day Saints Hospital★[4]	Salt Lake City	H. T. Anderson	3,077	752	273	90	2	7/1	1-3	100.00
Salt Lake General Hospital★[1]	Salt Lake City	M. T. Wintrobe	1,163	10,944	125	83	7	7/1	1-3	50.00
†Bishop DeGoesbriand Hospital★[1]	Burlington, Vt.	C. M. Terrien	858	....	2	...	2	1/1	1	......
Mary Fletcher Hospital★[1]	Burlington, Vt.	E. L. Amidon	1,754	600	88	52	5	3/1, 5/1	1	100.00
Alexandria Hospital★[4]	Alexandria, Va.	H. A. Latane	1,276	......	109	52	2	7/1	1-2	100.00
†Arlington Hospital[4]	Arlington, Va.	R. Schwartz	766	......	74	39	1	7/1	1	150.00
University of Virginia Hospital★[1]	Charlottesville, Va.	H. B. Mulholland	2,578	9,619	148	78	12	7/1	1-4	25.00
Chesapeake and Ohio Hospital★[1]	Clifton Forge, Va.	J. R. Beckwith and A. E. LeHew	3,099	5,892	56	23	2	7/1	1-2	60.00
De Paul Hospital★[4]	Norfolk, Va.	W. A. Martin	2,780	858	171	77	3	7/1	1	75.00
Norfolk General Hospital★	Norfolk, Va	W. B. Newcomb	2,774	2,870	140	39	3	7/1	1	75.00
Johnston-Willis Hospital★[4]	Richmond, Va.	J. M. Hutcheson	892	......	70	42	1	7/1	1	100.00
Medical College of Virginia Hosp. Div.★[1]	Richmond, Va.	W. B. Porter	2,490	11,203	270	82	9	7/1	1	46.50
†Jefferson Hospital★	Roanoke, Va.	G. B. Lawson	1,156	3,075	60	15	1	7/1	1	......
†Lewis-Gale Hospital★	Roanoke, Va.	C. D. Notsinger	1,138*b*	......	.....	...	1	7/1	1	150.00
Doctors Hospital★	Seattle	C. I. Krantz	1,778	....	133	66	1	7/1	1	100.00
King County Hospital★	Seattle	E. L. Turner	3,438	12,532	729	202	8	7/1	1-3	125.00
Providence Hospital★	Seattle	R. F. Foster	1,611	307	102	33	1	7/1	1-2	100.00
Swedish Hospital★	Seattle	E. G. Bannick	....	......	.....	...	1	....	1	......
Virginia Mason Hospital★	Seattle	L. J. Palmer	2,195	......	129	78	6	....	1-2	75.00
Deaconess Hospital★[4]	Spokane	E. W. Abrams	1,451	......	139	63	1	7/1	2	150.00
Northern Permanente Hospital★[4]	Vancouver, Wash.	E. Saward	939	7,523	53	37	1	7/1	1	150.00
†Beckley Hospital	Beckley, W. Va	D. C. Ashton	1,396	8,781	67	36	2	1/1, 7/1	1-3	150.00
†Charleston General Hospital★[4]	Charleston, W. Va.	W. A. Thornhill	1,903	2,291	97	52	3	7/1	1-3	125.00
Chesapeake and Ohio Hospital★	Huntington, W. Va.	J. P. Webb	1,080*b*	6,421*b*	.....	...	4	7/1	1-3	65.00
St. Mary's Hospital★	Huntington, W. Va.	J. R. Cook	2,466	......	185	46	1	7/1	1	100.00
La Crosse Lutheran Hospital★[4]	La Crosse, Wis.	T. E. Gundersen	1,399	271	44	20	1	1/1	1	100.00
Madison General Hospital★	Madison, Wis.	N. A. Hill	1,162	......	112	52	1	7/1	1-3	50.00
State of Wisconsin General Hospital★[4]	Madison, Wis.	O. O. Meyer	3,149	7,187	95	80	16	7/1	3	25.00
St. Joseph Hospital	Marshfield, Wis.	K. H. Doege	...	.....	.....	...	3	1/1, 7/1	1-3	200.00
Columbia Hospital★	Milwaukee	E. W. Mason	1,160	......	94	58	2	7/1	3	50.00
Milwaukee County Hospital★[4]	Milwaukee	J. Shaiken	6,830	16,206	877	245	22	Varies	1-3	82.26
Milwaukee Hospital★	Milwaukee	J. Huston	1,730	.....	113	58	2	7/1	1-3	70.00
Mount Sinai Hospital★	Milwaukee	R. A. Frisch	1,180	2,719	123	41	2	7/1	1-2	75.00
St. Joseph's Hospital★	Milwaukee	A. Kustermann	3,089*b*	......	.....	...	1	1/1	1-2	75.00
Queens Hospital★[4]	Honolulu, Hawaii	H. C. Gotshalk	2,473	......	186	90	6	4/1, 7/1	1-3	100.00

9. MALIGNANT DISEASES

Hospitals, 22; Assistant Residencies and Residencies, 107

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Veterans Administration										
Veterans Admin. Hospital	*Hines, Ill.*	*I. Ariel*	*1,406*	......	*239*	*123*	1	....	1-3	$275.00
Nonfederal										
Collis P. and Howard Huntington Memo. Hospital★	Pasadena, Calif.	G. S. Sharp	560	......	67	45	1	1/1	1-3	110.00
Grady Memorial Hospital★[4]	Atlanta, Ga.	C. Stewart	373	18,169	33	15	1	7/1	1	20.00
Michael Reese Hospital★[4]	Chicago	E. Uhlmann	......	996	....	....	3	7/1	1-3	50.00
[illegible]★	Boston	....	(Included in Surgery)			....	1	....	1	......
[illegible]d	Boston	L. S. McKittrick	......	......	....	....	2	4/1, 7/1	1	75.00
[illegible]	Walpole, Mass.	E. M. Daland	823	7,920	41	33	8	....	1	200.00
[illegible]	Westfield, Mass.	F. S. Hopkins	585	7,601	31	23	3	7/1	1-2	255.00
[illegible] and Infirmary★[4]	Eloise, Mich.	R. V. Walker	610	467	166	58	1	7/1	1	216.25
University Hospital★[4]	Minneapolis	O. H. Wangensteen	78	68	....	....	3	7/1	1-3	115.00
Ellis Fischel State Cancer Hospital[4]	Columbia, Mo.	....	1,116	5,058	46	38	11	7/1	1-2	50.00
Barnard Free Skin and Cancer Hospital	St. Louis	C. F. Sherwin	683	10,784	13	7	3	1/1, 7/1	1	200.00
Jersey City Hospital★[1]	Jersey City, N. J.	J. B. Faison	361	2,452	64	17	1	Varies	1-3	35.00
Brooklyn Cancer Institute[4]	Brooklyn	W. E. Howes	865	7,660	235	55	6	1/1	1+	......
Rosewell Park Memorial Institute[4]	Buffalo	G. L. Sheehan	1,944	26,143	89	89	5	7/1	1-2	244.00
Meadowbrook Hospital★	Hempstead, N. Y.	J. W. McChesney	437	4,048	90	44	1	7/1	1	115.00
Memorial Hospital[4]	New York City	C. P. Rhoads	5,300*b*	76,614*b*	....	....	32	1/1, 7/1	1	15.00
Montefiore Hospital for Chronic Diseases★	New York City	D. Laszlo	680	......	344	170	4	1/1, 7/1	1	50.00
New York Cancer Institute Hospital[4]	New York City	T. A. Morrissey	933	5,467	836	185	10	1/1, 7/1	1-2	100.00
Duke Hospital★[4]	Durham, N. C.	....	(Included in Medicine)			....	2	7/1	1	83.33
American Oncologic Hospital[1]	Philadelphia	G. M. Dorrance	793	7,287	33	18	6	7/1	1-5	100.00
Jeanes Hospital[4]	Philadelphia	A. E. Bothe	1,258	7,544	72	35	2	1/1, 7/1	1-3	100.00

Numerical and other references will be found on page 89

10. NEUROLOGICAL SURGERY

The following services are approved by the Council and the American Board of Neurological Surgery
Hospitals, 57, Assistant Residencies and Residencies, 138

Name of Hospital	Location	Chief of Service	Inpatients Treated[5]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Veterans Administration										
†Veterans Admin. Hospital[4]	San Francisco	O. W. Jones, Jr.	207	390	11	10	2	7/1	1-3	$275.00
†Veterans Admin. Hospital	Chamblee, Ga	R. T. Shields	430	......	20	12	2	7/1	1-3	275.00
†Veterans Admin. Hospital	Hines, Ill	L. Davis	398	...	40	25	4	....	1-3	275.00
†Veterans Admin. Hospital	White River Jct, Vt	H. L. Heyl	151	....	....	..	1	8/1	1	275.00
Nonfederal										
Jefferson-Hillman Hospital★[4]	Birmingham, Ala	G. Galbraith	816	228	40	31	2	7/1	1-2	50.00
Los Angeles County Hospital★[4]	Los Angeles	C. W. Rand	2,892	1,201	260	34	3	Varies	3	165.00
†White Memorial Hospital★	Los Angeles	W. T. Grant	322	...	18	15	1	....	1-3	147.33
Franklin Hospital★[4]	San Francisco	H. A. Brown	650	...	20	13	2	7/1	1	100.00
University of California Hospital★[4]	San Francisco	H. C. Naffziger	535	..	14	8	2	Varies	1	50.00
Hartford Hospital★[4]	Hartford, Conn.	......	710	391	46	37	2	7/1	1-3	.....
Grace-New Haven Community Hospital †New Haven Unit (University Service)★[2]	New Haven, Conn.	W. German	480	328	46	32	2	7/1	1	40.00
St. Vincent's Hospital★	Jacksonville, Fla	J. G. Lyerly	280		16	9	1	7/1	1	100.00
†Emory University Hospital★	Emory University, Ga	E. F. Fincher	401		16	9	1	7/1	1	50.00
Chicago Memorial Hospital★	Chicago	P. C. Bucy	353	975	17	12	2	7/1	1-3	200.00
Illinois Neuropsychiatric Institute[2]	Chicago	E. Oldberg					3	7/1	1-3	55.00
Mercy Hospital-Loyola University Clinics★	Chicago	H. C. Voris	285	172	24	12	1	7/1	1	25.00
Passavant Memorial Hospital★[4]	Chicago	L. Davis	343b				1	....	1	..
Presbyterian Hospital★	Chicago	A. Verbrugghen	199	208	11	7	1	......	1-3	25.00
St. Luke's Hospital★[4, 7]	Chicago	E. Oldberg		502	..	..	1	7/1	1	25.00
University of Chicago Clinics★	Chicago	T. B. Rasmussen	295	1,172	16	12	1	7/1	1+	25.00
†University of Kansas Hospitals★	Kansas City, Kan		272	.....	22	14	1	....	1	......
†Louisville General Hospital★[17]	Louisville, Ky	R. G. Spurling	236	...	38	15	2	......	1-2	..
†Foundation Hospital	New Orleans	D. H. Echols	177	1,518	13	4	2	.....	3	150.00
Johns Hopkins Hospital★	Baltimore	A. E. Walker	596	....	31	18	4	......	1	..
†University Hospital★[4]	Baltimore	C. Bagley, Jr	427	412	38	28	2	7/1	1-2	75.00
Boston City Hospital★[3]	Boston	D. Munro	309	.	80	10	2	....	1	66.67
Lahey Clinic	Boston	G. Horrax	1,000b	2,500b	...	....	5	......	1	..
Massachusetts General Hospital★	Boston	J. C. White	263b	.		..	5	......	1-3	41.67
†University Hospital★[4]	Ann Arbor, Mich	M. M. Peet	935	2,039	71	49	1	7/1	1-5	111.40
†Grace Hospital★	Detroit	E. S. Gurdjian	447	180	36	23	1	7/1	1-5	125.00
Henry Ford Hospital★[4]	Detroit	A. S. Crawford	298	1,625	32	18	3	7/1	1-3	200.00
University Hospitals★[4]	Minneapolis	W. T. Peyton	219	521	18	14	4	7/1	1-3	115.00
Mayo Foundation	Rochester, Minn	W. McK. Craig	(See page 89)				8	....	1	.....
Barnes Hospital★	St. Louis	H. Schwartz	469	...	37	25	1	7/1	1-5	25.00
University of Nebraska Hospital★[4]	Omaha	J. J. Keegan	41	...	6	5	1	7/1	1-3	50.00
Albany Hospital★[4]	Albany, N. Y.	E. H. Campbell	720	120	25	20	2	7/1	1	41.66
Jewish Hospital★[4]	Brooklyn	J. Siris and I. Tarlov	236	317	29	19	2	1/1	1-2	30.00
Kings County Hospital★	Brooklyn	J. Browder	3,290	1,461	301	158	3	7/1	1-3	50.00
Buffalo General Hospital	Buffalo	W. B. Hamby	319	91	27	17	2	7/1	1-4	25.00
Bellevue Hospital, Div. III—N. Y. Univ.★[4]	New York City		(Included in Surgery)		...		2	....	1	.....
Montefiore Hospital for Chronic Diseases★	New York City	L. M. Davidoff	431	.....	63	32	4	1/1, 7/1	1	50.00
†Mount Sinai Hospital★[4]	New York City		156b				1	....	1	50.00
Neurological Institute	New York City		(See Presbyterian Hospital)				....	....	.....	.....
Presbyterian Hospital★[4, 7]	New York City	J. E. Scarff	3,670	15,109	127	....	6	....	1-2	41.66
Strong Memorial and Rochester Municipal Hospitals★[4]	Rochester, N. Y.	W. P. Van Wagenen	220	204	...	....	1	7/1	1-2	66.66
[illegible]	Cincinnati	F. H. Mayfield	250		16	5	1	7/1	1	75.00
[illegible] ★	Cincinnati		(Included in Surgery)		..		2	....	1	..
[illegible] Hospital[4]	Cleveland	W. J. Gardner	831	7,424	69	44	5	7/1	1-3	100.00
[illegible]	Columbus, Ohio	H. E. LeFever	641	....	61	40	1	7/1	1-2	100.00
University Hospitals★	Oklahoma City	H. Wilkins		441	....	....	1	7/1	1-2	35.00
†University of Oregon Medical School Hospitals and Clinics★[1, 24]	Portland, Ore.	J. Raaf	(Included in Surgery)		...		1	7/1	3	75.00
Hospital of the Univ. of Pennsylvania★[4]	Philadelphia	F. C. Wood	3,058	..	214	142	15	7/1	1-3	25.00
Temple University Hospital★[4]	Philadelphia	M. Scott	513	1,494	47	19	1	7/1	3	50.00
Baptist Memorial Hospital★	Memphis, Tenn.	R. E. Semmes	926	278	46	17	1	7/1	1	75.00
Vanderbilt University Hospital★[4]	Nashville, Tenn.	C. Pilchner	(Included in Surgery)		...		2	......	1	..
†Methodist Hospital★[4]	Houston, Texas	J. Greenwood, Jr.	382	....	7	3	1	Varies	1-3	75.00
University of Virginia Hospital★[4]	Charlottesville, Va.	W. G. Crutchfield	716	685	50	29	3	7/1	1-3	50.00
Medical College of Virginia, Hosp. Div.★[4]	Richmond, Va.	C. C. Coleman	1,087	433	80	25	4	7/1	1	46.50

11. NEUROLOGY

The following services are approved by the Council and the American Board of Psychiatry and Neurology
(See footnotes 1, 2, and 3 for number of years credit)
Hospitals, 62; Assistant Residencies and Residencies, 200

Name of Hospital	Location	Chief of Service	Inpatients Treated[5]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Army										
†Letterman General Hospital★[3]		E. B. Litteral	285	311	..	..	5	1/1	1-3	n
Walter Reed General Hospital★[1]		B. E. Smith	878	1,050	1	1	3	....	1	n
†Percy Jones General Hospital★[2]		N. R. Cook	1,651	174	..	..	1	1/1, 7/1	1-2	n
Brooke General Hospital★[1]		R. E. Chambers	338	1,270	2	2	1	1/1	1-3	n
United States Navy										
†U. S. Naval Hospital★[1]	Bethesda, Md.	G. N. Raines	265	600	6	5	4	Varies	1-3	n
Veterans Administration										
†Veterans Admin. Hospital[4]	Van Nuys, Calif.	H. N. Roback	395	250	18	11	1	1/1, 7/1	3	$275.00
Veterans Admin. Hospital[1]	Hines, Ill.	L. J. Pollock	569	.....	50	29	8	Varies	1-3	275.00
†Veterans Admin. Hospital[2]	Topeka, Kans.	....	.....	.....	..	..	3	....	1	275.00
†Veterans Admin. Hospital[1]	Louisville, Ky.	....	1,103	.....	38	..	2	7/1	1	275.00
†Veterans Admin. Hospital[1]	Boston	S. Tartakoff	824	174	14	11	2	4/1	1	275.00
†Veterans Admin. Hospital[1]	Framingham, Mass.	F. A. Quadfasel	398	.....	2	2	5	7/1	1-3	275.00
†Veterans Admin. Hospital[1]	Minneapolis	A. B. Baker and J. R. Brown	425	.....	34	17	6	....	1	275.00
†Veterans Admin. Hospital[1]	New York City	H. Flowers	516	875	38	12	7	1/1, 7/1	1-3	275.00
†Veterans Admin. Hospital[2]	Cleveland	R. K. Kalina	284	.....	18	9	4	7/1	1-3	275.00

Numerical and other references will be found on page 89

11. NEUROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[8]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Nonfederal										
Los Angeles County Hospital★[3,4]	Los Angeles	S. D. Ingham	2,125	2,573	599	194	2	Varies	2	$165.00
†University of California Hospital★[1]	San Francisco	R. B. Aird	.....	2,466	..	..	3	Varies	1	50.00
ital★[2,4]	Washington, D. C	W. Freeman	483	.....	43	20	2	7/1	1-2	75.00
rsity Hospital★[2]	Washington, D. C	W. Freeman	73	371	2	1	2	....	1	......
† [4]	Chicago	J. A. Luhan	835	2,179	96	..	2	1/1, 7/1	1-3	27.50
†Illinois Neuropsychiatric Institute[1,4]	Chicago	E. Oldberg	650	6,735	48	34	3	7/1	1-3	55.00
St. Luke's Hospital★[2,4]	Chicago	R. P. MacKay	263	476	9	4	1	7/1	1-3	25.00
University of Chicago Clinics ★[2]	Chicago	R. B. Richter	143	2,499	5	3	1	7/1	1-2	25.00
†Methodist Hospital★[1,4]	Indianapolis	E. R. Smith	315	.....	10	6	1	7/1	1-2	200.00
University Hospitals★[3,4]	Iowa City	A. L. Sahs	1,204	1,155	32	17	3	7/1	1	50.00
Charity Hospital of Louisiana★[3,4,5]	New Orleans	....	859	8,350	36	11	5	7/1	1-3	25.00
Baltimore City Hospital★[3,4]	Baltimore	J. W. Magladery	.....	.....	..	..	1	7/1	1	35.00
Boston City Hospital★[3,4]	Boston	D. E. Denny-Brown	95	4,174	28	18	2	....	1	66.67
†Joseph H. Pratt Diagnostic Hospital[2,4]	Boston	R. D. Adams	905	437	..	..	2	1/1, 7/1	1	83.33
Massachusetts General Hospital★[3]	Boston	E. S. Kubik	250*b*	6,858*b*	..	..	2	7/1	1-3	41.67
University Hospital★[3,4]	Ann Arbor, Mich	C. Camp	491	3,874	25	12	2	7/1	1-5	111.40
Henry Ford Hospital★[1,4]	Detroit	G. O. Grain	(Included in Psychiatry)				5	7/1	1-3	200.00
Wayne County General Hospital and Infirmary★[1,4]	Eloise, Mich	R. T. Costell	1,456	1,092	58	18	1	7/1	1	216.25
†University Hospitals★[1,4]	Minneapolis	A. B. Baker	688	3,927	59	49	9	7/1	1-3	115.00
Mayo Foundation[3]	*Rochester, Minn*	*H. W. Woltman*	(See page 89)		..	..	10	....	1-3	......
†Barnes Hospital★[3]	St. Louis, Mo	E. F. Gildea	358	....	9	6	4	7/1	1-3	25.00
Homer G. Phillips Hospital★[3,5]	St. Louis	E. F. Gildea	813	1,230	78	10	1	7/1	1	50.00
†Albany Hospital★[1]	Albany, N.Y	S. E. Barrera	.....	.....	..	..	1	7/1	1-3	40.00
Brooklyn Hospital★[2,4]	Brooklyn	E. J. Browder	292	.....	..	..	2	7/1	1	25.00
†*Jewish Sanitarium and Hosp. for Chronic Diseases*[1]	Brooklyn	A. M. Rabiner	317	....	52	13	2	....	1	150.00
Kings County Hospital★[3]	Brooklyn	H. R. Merwarth	2,907	2,411	558	70	4	7/1	1-2	50.00
†Buffalo General Hospital★[2]	Buffalo	W. B. Hamby	170	430	10	5	2	7/1	1-3	25.00
Bellevue Hosp., Div. II—Cornell Univ★[3,4]	New York City	F. Kennedy	400*b*	5,500*b*	..	..	3	7/1	1-3	45.00
Bellevue Hosp., Div. III—N. Y. Univ.★[1,4]	*New York City*	S. B. Wortis	2,400*b*	1,000*b*	..	...	4	7/1	1	45.00
Goldwater Memorial Hospital★[2,4,5]	New York City	E. G. Zabriskie and B. Dattner	660	481	96	28	6	7/1	1	70.00
Lenox Hill Hospital★[2,4]	*New York City*	T. K. Davis	366	.....	17	12	1	Varies	1-2	50.00
Metropolitan Hospital★[2,4]	New York City	S. P. Jewett	59	1,529	14	3	1	1/1	1-2	120.00
Montefiore Hospital for Chronic Diseases★[3,4]	New York City	H. H. Merritt	492	3,111	35	21	5	1/1, 7/1	1	50.00
Morrisania City Hospital★[2,4]	New York City	N. Savitsky	(Included in Medicine)				2	7/1	1	60.00
Mount Sinai Hospital★[3,4]	*New York City*	....	.....	.....	..	..	5	1/1, 7/1	1+	50.00
Neurological Institute	New York City		(See Presbyterian Hospital)							
New York City Hospital★[2,4]	New York City	H. V. Wildman	539	1,167	148	50	2	7/1	1	120.00
Presbyterian Hospital★[3,4]	New York City	E. G. Zabriskie	(See Neurological Surgery)							
							13	....	1-2	41.66
†*St. Vincent's Hospital*★[1]	*New York City*	C. G. de Gutierrez-Mahoney	673	530	55	31	3	7/1	1-2	50.00
†Rochester General Hospital★[1,4]	Rochester, N. Y	G. R. Lavine and P. W. Prew	.....	203	..	..	1	7/1	1	60.00
Duke Hospital★[3,4]	Durham, N. C	R. Graves	198	765	3	3	3	7/1	1	83.33
Cincinnati General Hospital★[3]	Cincinnati	C. Aring	(Included in Internal Med.)							
							2	....	1	......
†Cleveland Clinic Foundation Hospital[1,4]	Cleveland	L. J. Karnosh	41	3,940	1	..	2	7/1	1	100.00
Hospital of the Univ. of Pennsylvania★[3,4]	Philadelphia	G. D. Gammon	559	2,651	11	9	2	Varies	1-2	50.00
Jefferson Medical College Hospital★[3]	*Philadelphia*	B. J. Alpers	546	2,606	14	11	3	....	1	......
★[1,4]	Philadelphia	....	1,895	.....	599	..	3	....	1-3	70.00
[3,4]	Philadelphia	S. F. Gilpin	148	.....	3	2	1	7/1	3	50.00
	Pittsburgh	R. R. O'Toole	.....	.....	..	..	1	....	1	......
Hospital (*University of Texas Medical Branch*)[1,4]	Galveston, Texas	J. R. Ewalt	1,449	2,667	16	13	10	9/1	1	200.00

12. OBSTETRICS AND GYNECOLOGY

The following services are approved by the Council and the American Board of Obstetrics and Gynecology

(See footnotes 1, 2 and 3 for number of years credit)

Hospitals, 336; Assistant Residencies and Residencies, 1,145

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated 6		Outpatient Visits		Asst. Res. and Residencies Offered[8]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
				OB	Gyn	OB	Gyn				
United States Army											
Fitzsimons General Hospital★[1]	Denver	J. H. Forsee	OBG†	750	500	9,595	800	3	1/1	1	*n*
Walter Reed General Hospital★[2]	Washington, D. C.	J. E. Sams and H. L. Riva	OBG	2,326	594	9,101	2,202	5	1/1	1-2	*n*
Brooke General Hospital★[1]	San Antonio, Texas	J. W. Simpson	OBG†	2,247	589	13,670	8,160	3	1/1	1-3	*n*
United States Navy											
U. S. Naval Hospital★[1]	Long Beach, Calif.	R. E. Crowder	OBG	1,562	750	13,064	7,979	2	Varies	1	*n*
U. S. Naval Hospital★[1]	Oakland, Calif.	....	OBG	1,403		......	......	1	....	1	*n*
U. S. Naval Hospital★[2]	*San Diego, Calif.*	*H. H. Hill*	*OBG*	*2,108*	*1,056*	*16,961*	*10,745*	4	Varies	1-2	*n*
U. S. Naval Hospital★[2]	Great Lakes, Ill.	L. M. Harris	OBG	447	218	5,628	3,898	3	Varies	1-3	*n*
U. S. Naval Hospital[1]	Annapolis, Md.	J. W. Miller	OBG	557	81	3,998	956	2	Varies	1	*n*
U. S. Naval Hospital★[3]	Bethesda, Md.	P. Peterson	OBG†	892	453	......	1,236	2	Varies	1-3	*n*
U. S. Naval Hospital★[2]	Chelsea, Mass.	....	OBG	693	......	......	......	1	....	1-2	*n*
U. S. Naval Hospital★[1]	Brooklyn	E. B. Hopper	OBG	927	291	6,736	1,824	1	....	1	*n*
U. S. Naval Hospital★[3]	Philadelphia	F. B. Smith	OBG	951		10,532		3	Varies	1-3	*n*
U. S. Naval Hospital★[1]	Portsmouth, Va.	....	OBG	1,051	......	......	......	1	....	1	
Nonfederal											
Jefferson-Hillman Hospital★[3,4]	Birmingham, Ala.	W. N. Jones and J. R. Garber	OBG	3,757	1,596	9,092	5,862	3	7/1	1-2	$ 50.00
Norwood Hospital★[1]	Birmingham, Ala.	T. M. Boulware	OB†	1,762	......	8,434	......	1	7/1	3	*100.00*
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company★[2]	Fairfield, Ala.	O. T. West	OB	1,930	......	10,845	......	3	7/1	1-3	200.00

Numerical and other references will be found on page 89.

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated[4] OB	Inpatients Treated[4] Gyn	Outpatient Visits OB	Outpatient Visits Gyn	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
St. Vincent Infirmary★[1]	Little Rock, Ark.	C. D. Rodgers	OB†	2,005	......	......	......	2	7/1	1	$50.00
		J. H. Sanderlin	Gyn†	......	1,077	......	......	2	7/1	1	50.00
University Hospitals★[1, 4]	Little Rock, Ark.	E. T. Ellison	OBG†	1,401	486	10,152	4,293	2	7/1	1	50.00
San Joaquin General Hospital★[1]	French Camp, Calif.	S. Hanson	OBG	1,376	307	7,047	1,430	1	7/1	1	200.00
[illegible]	Los Angeles	G. W. Hewitt	OB	3,832	......	671	......	5	7/1	3	100.00
[illegible]★[3, 4]	Los Angeles	B. J. Hanley	OBG	7,900	1,817	2,718	5,861	6	Varies	3+	165.00
[illegible] Memorial★[1]	Los Angeles	J. C. Irwin	OB†	2,577	......	......	......	1	7/1	1	45.00
Queen of Angeles Hospital★[3]	Los Angeles	A. M. McCarthy	OBG	5,318	1,726	......	......	3	7/1	3	100.00
White Memorial Hospital★[3, 4]	Los Angeles	R. J. Thompson	OBG	2,011	870	11,158	......	4	....	1-3	147.33
Highland-Alameda County Hospital★[1, 4]	Oakland, Calif.	T. F. Bell	OBG	1,661	490	......	......	2	....	1	130.00
Permanente Foundation Hospital★[1, 4]	Oakland, Calif.	R. W. King	OBG	2,208	1,308	16,176		3	7/1	1	125.00
Samuel Merritt Hospital[2]	Oakland, Calif	C. C. Hall and W. Mills	OBG†	2,885	705	......	......	1	7/1	1-2	110.00
Collis P. and Howard Huntington Memorial Hospital★[1]	Pasadena, Calif	W. C. Rogers	OBG	2,118	787	12	46	1	7/1	1	85.00
Mercy Hospital★[1]	San Diego, Calif	C. R. Kennedy	OB†	4,726	......	......	......	3	7/1	1	100.00
San Diego County General Hospital★[1]	San Diego, Calif.	W. B. McGee	OBG†	666	628	3,311		3	7/1	1	187.00
Children's Hospital★[3, 4]	San Francisco	H. A. Stephenson	OBG	3,018	623	......	......	2	7/1	1	50.00
Mary's Help Hospital★[1, 4]	San Francisco	C. L. Cooley	OBG†	1,912	420	2,267	939	2	7/1	1	150.00
St. Mary's Hospital★[1]	San Francisco	P. H. Arnot	OB	2,692	......	......	......	2	....	1	100.00
San Francisco Hospital★[3, 4]	San Francisco	W. G. Moore	OBG	2,119	669	......	......	4	....	1	175.00
Stanford University Hospitals★[3, 4]	San Francisco	C. E. McLennan	OBG	2,869	992	16,385		6	7/1	1	50.00
University of California Hospital★[3, 4]	San Francisco	H. F. Traut	OBG	1,182	884	6,761	7,312	10	Varies	1-3	50.00
Santa Clara County Hospital★[1]	San Jose, Calif.	A. Shufelt	OBG	569	......	......	......	1	7/1	1-2	180.00
University of Colorado Medical Center											
Colorado General Hospital★[3, 4]	Denver	E. S. Taylor	OBG	752	333	4,107	2,665	3	Varies	1-3	75.00
Denver General Hospital★[1, 4]	Denver	E. S. Taylor	OBG†	791	632	2,021	598	1	1/1	1	50.00
Bridgeport Hospital★[1]	Bridgeport, Conn	C. Griswold	OB†	2,778	......	846	......	1	....	1	....
Hartford Hospital★[3, 4]	Hartford, Conn		OBG†	6,649	2,035	4,401	359	3	7/1	1-3	....
New Britain General Hospital★[1]	New Britain, Conn.	D. A. Bristoll	OBG†	1,860	613	110	......	2	7/1	1	50.00
Grace-New Haven Community Hospital											
Grace Unit★[3]	New Haven, Conn.	H. B. Perrins	OBG	2,276	579	......	......	3	7/1	3	40.00
New Haven Unit (University Service)★[3, 4]	New Haven, Conn.	H. Thoms	OBG	2,254	882	10,403	......	4	7/1	1	40.00
Hospital of St. Raphael★[1]	New Haven, Conn.	C. E. Johnson	OB	2,719	......	790	......	2	7/1	1	75.00
Lawrence and Memorial Assoc. Hospitals★[1, 4]	New London, Conn.	C. G. Barnum	OBG†	1,998	......	......	......	4	7/1	1	105.00
Columbia Hospital for Women and Lying-in Asylum[3, 4]	Washington, D. C.		OBG	4,252	1,369	8,720	4,090	8	1/1, 7/1	1½-3	None
Doctors Hospital★[2]	Washington, D. C.	J. D. Wynkoop	OBG	2,263	1,003	......	......	2	7/1	1	....
Freedmen's Hospital★[3, 4]	Washington, D. C.	J. W. Ross	OBG	1,339	1,196	6,900	3,187	3	7/1	1-3	116.66
Gallinger Municipal Hospital★[2, 4]	Washington, D. C.		OBG	6,183	611	4,611	2,753	6	7/1	1-2	75.00
Garfield Memorial Hospital★[3, 4]	Washington, D. C.	H. P. Parker and H. L. Darner	OBG	3,752	651	3,731	952	6	7/1	1-3	35.00
Georgetown University Hospital★[1, 4]	Washington, D. C.	A. A. Marchetti	OBG†	2,058	937	......	......	2	7/1	1-3	50.00
George Washington University Hospital★[2]	Washington, D. C.	J. L. Parks	OBG†	1,056	389	416	191	4	7/1	1-2	50.00
Providence Hospital★[2]	Washington, D. C.	G. J. Ellis	OB(G)†	3,829	996	1,852	803	1	7/1	1-2	75.00
Sibley Memorial Hospital★[2, 4]	Washington, D. C.	J. Kotz	OB	3,825	......	......	......	6	7/1	1-2	75.00
St. Luke's Hospital★[1]	Jacksonville, Fla.	S. R. Norris	OB†	1,963	......	960	......	2	7/1	1	125.00
Crawford W. Long Memorial Hospital★[2, 4]	Atlanta, Ga.	C. S. Gibson	OBG	6,134	1,374	3,740	81	10	7/1	1-2	75.00
Grady Memorial Hospital★[1, 4]	Atlanta, Ga.	J. B. Cross	OBG	5,754	930	31,122	13,111	12	7/1	1-3	20.00
St. Joseph's Infirmary★[1]	Atlanta, Ga.	B. H. Boyd	OB†	1,443	......	......	......	3	7/1	1-3	60.00
University Hospital★[1, 4]	Augusta, Ga.	R. Torpin	OBG	3,183		6,758		1	7/1	1-2	40.00
Augustana Hospital★[1]	Chicago	W. H. Browne	OBG†	1,121	606	811	1,175	1	7/1	1-3	50.00
Chicago Lying-in Hospital and Dispensary	Chicago		(See University of Chicago Clinics)								
Chicago Maternity Center[1, 4]	Chicago	B. E. Tucker	OB	3,089	......	8,591	......	35	1/1	1	75.00
Cook County Hospital★[1, 4]	Chicago	J. E. Fitzgerald	OB	10,410	......	11,228	......	12	1/1, 7/1	1-3	27.50
Grant Hospital★[1, 4]	Chicago	W. A. Stuhr	OB(G)†	1,473	......	......	......	1	7/1	1-3	125.00
Henrotin Hospital★[1, 4]	Chicago	E. L. Cornell	OB	1,051	......	......	......	1	7/1	1-2	100.00
Illinois Masonic Hospital★[1, 4]	Chicago	F. J. Roos	OBG	1,411	597	......	......	1	....	1	....
Lewis Memorial Maternity Hospital[1, 4]	Chicago	H. E. Schmitz	OBG	1,772	602	......	......	6	7/1	1-5	50.00
Lutheran Deaconess Home and Hospital★[1]	Chicago	....	OB†	1,757	......	......	......	1	7/1	1	100.00
Mercy Hospital-Loyola Univ. Clinics★[1, 4]	Chicago	H. E. Schmitz	OBG	1,169	986	......	2,835	2	7/1	1	25.00
Michael Reese Hospital★[1, 4]	Chicago	I. Stein	OBG	2,526	1,519	......	1,756	5	1/1, 7/1	3	25.00
Mount Sinai Hospital★[1, 4]	Chicago	H. Buxbaum and A. E. Kanter	OBG	1 898	559	819	537	1	7/1	1-2	50.00
Passavant Memorial Hospital★[3, 4]	Chicago	J. I. Brewer	Gyn	......	630	......	......	2	....	1-3	....
Presbyterian Hospital★[3]	Chicago	E. D. Allen	OBG	3,447		2,708		6	Varies	1-3	25.00
Provident Hospital★[3, 4]	Chicago	P. Santos and W. Tate	OBG	1,762	787	2,718	1,704	7	7/1	1-3	50.00
Ravenswood Hospital★[1]	Chicago	W. G. Rurik	OBG	1,750	508	260	260	4	7/1, 9/1	1-2	50.00
Research and Educational Hospitals★[3, 4]	Chicago	F. H. Falls	OB	1,012	......	9 625	......	5	7/1	1-3	55.00
St. Anne's Hospital★[3]	Chicago	R. J. Hawkins	OB	3,088	......	......	......	3	1/1	1½-3	125.00
St. Elizabeth Hospital★[1]	Chicago	J. R. Lavieri	OBG†	2,697	712	......	......	3	....	3	60.00
St. Joseph Hospital★[1, 4]	Chicago	C. Geiger	OB	1,593	......	......	......	1	....	1	....
		C. Geiger	Gyn	......	793	......	......	1	....	1	....
St. Luke's Hospital★[3, 4]	Chicago	H. O. Jones	OBG	1,684	970	4,405	1,807	4	7/1	1-3	25.00
St. Mary of Nazareth Hospital★[1]	Chicago	M. Uznanski	OBG†	2,859	476	8,126	1,428	1	....	1	125.00
St. Vincent's Infant and Maternity Hospital[1, 4]	Chicago	H. E. Schmitz	OB	492	......	2,910	......	1	7/1	1	50.00
Swedish Covenant Hospital★[1, 4]	Chicago	G. L. Rosene and R. A. Lifvendahl	OBG†	2,277	600	203	......	1	1/1	1-2	125.00
University of Chicago Clinics★[1, 4]	Chicago	W. J. Dieckmann	OBG	5,017	856	29,771	10,068	8	7/1	1-3	25.00
Wesley Memorial Hospital★[3, 4]	Chicago	G. H. Gardner	OB	1,798	......	......	......	2	1/1, 7/1	1-3+	25.00
		G. H. Gardner	Gyn	......	963	......	......	1	1/1, 7/1	1-3+	25.00
Women and Children's Hospital★[3, 4]	Chicago	L. Nadelhoffer M. Williams	OB(G)†	1,650	624	1,132	1,595	1	1/1, 7/1	1-3	75.00

Numerical and other references will be found on page 89

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated [6]		Outpatient Visits		Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
				OB	Gyn	OB	Gyn				
Evanston Hospital★[3]	Evanston, Ill.	D. D. Danforth	OBG	1,735	745	1,031	502	3	....	3	$ 50.00
St. Francis Hospital★[3]	Evanston, Ill.	J. X. Bremner and E. C. McGill	OBG	2,758	744	......	......	1	10/1	1	75.00
Little Company of Mary Hospital★[2]	Evergreen Park, Ill.	P. Lawler	OB	3,523	......	......	......	2	1/1	1	100.00
West Suburban Hospital★[2]	Oak Park, Ill.	F. H. Falls	OBG	4,088	1,099	......	......	3	7/1	1-2	100.00
St. Francis Hospital★[2,4]	Peoria, Ill.	W. A. Michael	OBG	3,322	814	328	349	2	4/1, 9/1	1-3	150.00
Indianapolis General Hospital★[3,4]	Indianapolis	F. J. Hudson and J. W. Hofmann	OBG	1,603	1,050	8,021	2,924	3	7/1	1-3	70.00
Indiana University Medical Center★[3,4]	Indianapolis	C. P. Huber	OB	2,083	......	3,529	......	3	7/1	3	33.33
Methodist Hospital★[2,4]	Indianapolis	D. L. Smith	OB	5,608	......	......	......	2	7/1	1-2	200.00
St. Elizabeth Hospital★[2]	La Fayette, Ind.	F. W. Peyton	OBG†	1,231	......	......	......	4	1/1	1-2	100.00
University Hospitals★[3,4]	Iowa City	E. D. Plass	OBG	1,025		2,171		8	7/1	1	50.00
University of Kansas Hospitals★[3]	Kansas City, Kan.	L. A. Calkins	OBG	1,190	626	5,613	3,284	4	....	1-3	....
St. Francis Hospital★[3]	Wichita, Kan.	R. A. West	OBG	2,303	......	1,511	......	1	7/1	1-3	100.00
Louisville General Hospital★[3]	Louisville, Ky.	S. H. Starr and W. O. Johnson	OBG	1,800	380	10,689	6,548	5	7/1	1	45.00
St. Joseph Infirmary★[1]	Louisville, Ky.	E. R. Cadden	OBG†	2,817	......	......	......	1	7/1	1-3	75.00
Charity Hospital of Louisiana★[3,4]	New Orleans	......	OBG	8,145	3,898	51,600	26,689	20	7/1	1-3	25.00
Touro Infirmary★[3]	New Orleans	W. E. Levy	OB	2,337	....	4,285	....	2	7/1	1	17.50
		C. Tyrone	Gyn	......	1,402	......	1,663	2	7/1	1	17.50
Shreveport Charity Hospital★[1]	Shreveport, La.	C. R. Mays	OB†	3,312	......	......	......	2	7/1	1-3	60.00
Baltimore City Hospitals★[3,4]	Baltimore	L. C. Douglass	OB	2,092	......	......	......	5	7/1	1	35.00
Bon Secours Hospital★[1,4]	Baltimore	H. B. McNally and E. Novak	OBG†	1,335	811	451	568	3	4/1	1-3	75.00
Franklin Square Hospital★[1,4]	Baltimore	I. A. Siegel and W. J. Rysanek, Jr.	OB(G†)	2,172	588	1,744	624	5	7/1	1-4	75.00
Hospital for Women★[1,4]	Baltimore	J. Bergland	OB	1,612	......	3,211	......	3	7/1	1	75.00
Johns Hopkins Hospital★[3,4]	Baltimore	N. J. Eastman	OB	3,532	....	17,887	......	9	....	3	....
		R. TeLinde	Gyn	......	2,328	......	12,344	8	....	3	....
Maryland General Hospital★[2]	Baltimore	K. B. Boyd and E. H. Kloman	OBG	1,218	425	296	48	3	7/1	1-3	50.00
Mercy Hospital★[3]	Baltimore	......	OBG	1,688	900	......	......	4	....	1-3	50.00
Provident Hospital and Free Disp.★[1,4]	Baltimore	L. H. Douglass	OB	1,275	......	2,961	......	1	....	1	....
St. Agnes Hospital★[1]	Baltimore	D. P. Bowe and E. Novak	OBG†	1,906	757	587	140	3	....	1	....
St. Joseph's Hospital★[1]	Baltimore	H. B. McNally and T. K. Galvin	OBG	1,572	962	3,550	923	3	7/1	3	50.00
Sinai Hospital★[3,4]	Baltimore	A. F. Guttmacher	OB[2]	3,168	...	......	......	3	7/1	1-3	25.00
		D. Silberman	Gyn[1]	......	1,072	......	......	3	7/1	1-3	25.00
South Baltimore General Hospital★[1,4]	Baltimore	F. D. Kaltreider	OB†	1,367	......	1,358	......	2	7/1	1-2	75.00
Union Memorial Hospital★[1]	*Baltimore*	J. M. Haws	OB	......	......	....	......	2	7/1	1	....
University Hospital★[3,4]	Baltimore	L. H. Douglass	OB	2,833	......	18,021	......	4	7/1	1-2	75.00
		J. M. Hundley, Jr.	Gyn	......	1,080	......	6,879	6	7/1	1-2	75.00
West Baltimore General Hospital★[1,4]	Baltimore	D. M. Dixon and W. K. Diehl	OBG†	2,304	691	2,705	235	2	....	1	....
Boston City Hospital★[3,4]	Boston	F. J. Lynch and F. L. Good	OBG	3,113	2,163	11,153	6,019	2	....	1-3	66.67
Boston Lying-In Hospital[1,4]	Boston	D. E. Reid	OB	3,322	......	30,055	......	10	1/1, 7/1	1-2	None
Carney Hospital★[2]	Boston	L. E. Phaneuf	OBG	1,399	793	2,592	852	3	....	2	50.00
Massachusetts Memorial Hospitals★[2,4]	Boston	O. W. Sewall	OB	1,213	......	4,329	......	3	4/1	2	50.00
New England Hospital for Women and Children★[1,4]	Boston	M. Woodman	OB†	2,610	......	......	......	3	1/1	1	50.00
Evangeline Booth Maternity Hospital and Home[1,4]	Brookline, Mass.	A. K. Paine	OB	980	.....	4,120	.....	2	7/1	1	62.50
Free Hospital for Women[1,4]	Brookline, Mass.	G. V. S. Smith	Gyn	......	3,049	......	12,525	5	1/1	1	25.00
Cambridge City Hospital★[3]	Cambridge, Mass.	F. J. Lynch	OBG†	2,513		3,225		1	1/1	1-3	58.33
Quincy City Hospital★[1]	Quincy, Mass.	E. L. Carey	OBG†	1,933	......	705	......	1	7/1	1-2	100.00
St. Joseph's Mercy Hospital★[1]	Ann Arbor, Mich.	......	OBG†	1,517	578	1,659	7,703	2	1/1, 7/1	1-3	125 00
University Hospital★[3,4]	Ann Arbor, Mich.	N. Miller	OBG	1,913	827	11,706		4	7/1	1-5	111.40
City of Detroit Receiving Hospital★[3,4]	Detroit	W. F. Seeley	OBG	*c*	933	*c*	5,462	4	7/1	3-4	167.00
Florence Crittenton Hospital[1,4]	Detroit	H. A. Pearse	OBG	2,449	709	4,107	191	6	....	1-3	110.00
Grace Hospital★[3,4]	Detroit	O. W. Pickard	OBG	2,917	1,600	174	1,962	6	7/1	1-4	75.00
Harper Hospital★[3,4]	Detroit	W. F. Seeley	OBG	3,209	1,100	678	2,158	6	7/1	1	118.00
Henry Ford Hospital★[3,4]	Detroit	J. P. Pratt	OBG	2,182	987	10,009	23,797	5	7/1	1-3	200.00
Herman Kiefer Hospital[3,4]	Detroit	W. F. Seeley	OBG	2,871	*f*	......	*f*	2	7/1	1-4	170.00
Mt. Carmel Mercy Hospital★[1]	*Detroit*	*C. N. Swanson*	OB	*5,535*	......	......	......	3	7/1	1-3	100.00
Providence Hospital★[4]	Detroit	R. Alles	OBG	3,951	......	1,391	......	4	7/1	1-3	140.00
St. Joseph's Mercy Hospital★[2]	Detroit	......	OB[1]	2,017	......	......	......	1	....	1	....
			Gyn[1]	......	......	......	......	1	....	1	....
St. Mary's Hospital★[3]	Detroit	V. J. Turcotte	OBG	2,370	977	......	......	6	7/1	3	....
Woman's Hospital★[3,4]	Detroit	L. Daniels and H. Nelson	OBG	3,670	1,357	966	472	5	7/1	1-3	125.00
Hurley Hospital★[1]	Flint, Mich.	M. R. Burnell	OBG†	3,172	1,071	......	......	1	7/1	1-3	135.00
Blodgett Memorial Hospital★[1]	Grand Rapids, Mich.	......	OB†	1,486	......	......	......	1	7/1	1	....
[illegible]	Grand Rapids, Mich.	L. S. Griffith	OBG†	2,788	1,152	675	261	3	7/1	3	100.00
[illegible]	Grand Rapids, Mich.	J. H. Beaton	OBG†	4,020		......	......	1	1/1	2	125.00
[illegible]	Pontiac, Mich.	H. A. Furlong	OB	1,629	......	......	......	2	7/1	1-3	75.00
[illegible]	Saginaw, Mich.	C. E. Toshach	OB†	1,709	717	282	......	2	7/1	2-3	75.00
St. Luke's Hospital★[1]	Duluth, Minn.	P. N. Bray	OB†	2,010	......	......	......	1	10/1	1	100.00
St. Mary's Hospital★[2]	Duluth, Minn.	R. J. Moe	OB	1,557	......	......	......	1	....	1	....
Abbott Hospital[1]	Minneapolis	R. E. Swanson	OB†	1,018	......	......	......	2	....	1	100.00
Maternity Hospital[1]	Minneapolis	A. W. Arnold	OB†	1,209	......	......	......	2	7/1	1-2	150.00
Minneapolis General Hospital★[3]	Minneapolis	L. A. Lang	OBG	710	489	3,910	2,830	2	1/1, 7/1	1-3	115.00
Northwestern Hospital★[1,4]	Minneapolis	W. Sadler	OBG†	2,135	753	......	......	1	....	1	150.00
St. Barnabas Hospital★[1,4]	Minneapolis	O. F. Robbins	OBG†	2,518	531	......	......	1	....	1	....
St. Mary's Hospital★[1]	Minneapolis	L. A. Lang	OB(G†)	3,601	1,060	......	......	2	1/1, 7/1	1	150.00
University Hospitals★[3,4]	Minneapolis	J. L. McKelvey	OBG	396	466	116	564	4	7/1	1-3	115.00
Mayo Foundation[3]	Rochester, Minn.	L. M. Randall	OBG	(See page 89)		......	......	12	....	3	....
Ancker Hospital★[3]	St. Paul	A. G. Schulze	OBG	274	319	804	1,259	1	1/1	3	91.50
Charles T. Miller Hospital★[3]	St. Paul	R. S. Countryman and E. C. Hartley	OBG	2,865	668	1,517	805	2	Varies	1-3	115.00
St. Louis County Hospital★[1]	Clayton, Mo.	E. L. Dorsett	OBG†	594	335	3,252	2,912	2	7/1	1-3	80.00
Kansas City General Hospital No. 1★[3]	Kansas City, Mo.	P. A. Gempel	OBG	964	801	3,540	3,627	4	7/1	3-4	50.00
St. Joseph Hospital★[1]	Kansas City, Mo.	A. B. Sinclair	OBG†	2,229	500	......	......	2	7/1	1-3	100.00
DePaul Hospital[2]	St. Louis	L. M. Riordan	OBG†	3,380	433	241		2	7/1	2-3	60.00
Homer G. Phillips Hospital★[3,4]	St. Louis	T. K. Brown	OBG	2,097	1,163	3,203	3,644	4	7/1	1	50.00

Numerical and other references will be found on page 89

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated OB	Inpatients Treated Gyn	Outpatient Visits OB	Outpatient Visits Gyn	Asst. Res. and Residencies Offered	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Jewish Hospital★[3]	St. Louis	S. D. Soule and M. H. Meyerhardt	OBG	2,411	671			2		1	$50.00
Missouri Baptist Hospital★[1]	St. Louis	J. B. O'Neill	OBG†	1,110	402			2	7/1	1-3	60.00
St. Louis City Hospital★[3, 4]	St. Louis		OBG	1,331	1,015	2,222	2,441	6	7/1	1	95.00
St. Louis Maternity Hospital[1, 4]	St. Louis	W. Allen	OBG	3,213	k	8,782	k	3	7/1	1-3	25.00
St. Luke's Hospital★[2, 4]	St. Louis	O. S. Krebs	OBG	1,199	636			2	7/1	1	75.00
St. Mary's Group of Hospitals★[3]	St. Louis	J. A. Hardy, Jr.	OBG	6,008		13,009		5	Varies	3	35.00
Montana Deaconess Hospital★[1]	Great Falls, Mont.	L. L. McPhail	OBG†	984	292			1		1	
Lincoln General Hospital★[1]	Lincoln, Nebr.	H. E. Harvey	OBG†	1,198		250		1		1	
Creighton Memorial St. Joseph's Hospital★[3, 4]	Omaha	M. E. Grier	OBG	2,171	1,530	1,616	1,119	1		1-3	100.00
University of Nebraska Hospital★[3, 4]	Omaha	E. C. Sage	OBG	185	240			2	7/1	1-3	75.00
Cooper Hospital★[2]	Camden, N. J.	A. B. Davis and G. B. German	OB(G)†	3,258		10,675		3		1-3	83.33
Jersey City Hospital★[3, 4]	Jersey City, N. J.	E. N. Bookrajian	Gyn		787		4,069	2	Varies	1-3	35.00
Margaret Hague Maternity Hospital[1, 4]	Jersey City, N. J.	S. A. Cosgrove	OB	11,878		22,461		16	Quarterly	1-3	50.00
Monmouth Memorial Hospital★[2, 4]	Long Branch, N. J.	R. A. MacKenzie	OB	2,094		586		1		1	
Paterson General Hospital★[1]	Paterson, N. J.	L. E. Thron	OB†	2,987		684		1		1	100.00
Albany Hospital★[2, 4]	Albany, N. Y.	A. J. Wallingford	Gyn		2,757		716	2	7/1	1	41.66
Anthony N. Brady Maternity Home[2, 4]	Albany, N. Y.		OB	2,783		3,336		1		2	100.00
Beth-El Hospital★[2, 4]	Brooklyn	A. Koplowitz	OB	4,269		2,028		3	1/1, 7/1	1-2	100.00
Brooklyn Hospital★[2, 4]	Brooklyn	J. T. Wallace	OBG	1,973	651	4,171	1,633	2	7/1	1-2	25.00
Brooklyn Women's Hospital[1]	Brooklyn	A. Koplowitz	OBG†	2,111		2,559		2	8/1	1	125.00
Cumberland Hospital★[2, 4]	Brooklyn	S. Lalon	OB	1,121		5,501		2	7/1	1	70.00
		S. Lalon	Gyn†		475		1,630	2	7/1	1	70.00
Greenpoint Hospital★[1, 4]	Brooklyn	W. C. Meagher	OBG	1,120	891	5,513	4,831	3	7/1	1	120.00
Jewish Hospital★[2, 4]	Brooklyn		OBG	5,996	1,535	6,733	2,672	6	1/1, 7/1	1½	30.00
Kings County Hospital★[3]	Brooklyn	C. A. Gordon and R. Garlick	OBG	4,267	3,788			4	7/1	1	100.00
Long Island College Hospital★[3, 4]	Brooklyn	W. A. Jewett	OBG	2,313	1,015	5,222	1,840	3	7/1	1-3	25.00
Methodist Hospital★[1, 4]	Brooklyn	G. H. Davis	OBG	2,947	694	7,269	716	8	7/1	3-4	25.00
Norwegian Lutheran Deaconesses' Home and Hospital★[1, 4]	Brooklyn	B. Harris	OB	1,161b				1		1	
St. Catherine's Hospital★[1]	Brooklyn	C. A. Gordon	OBG†	2,117	746	3,215	36	3	7/1	1	35.00
St. John's Hospital★[1, 4]	Brooklyn	C. W. Mueller	OBG	1,088	249			3	7/1	1-3	95.00
St. Mary's Hospital★[2, 4]	Brooklyn	H. J. Goubeaud, Jr.	OBG	622		1,050		3	7/1	2	50.00
Buffalo General Hospital★[1, 4]	Buffalo	C. L. Randall	OBG	1,567	1,110	2,828	1,478	8	7/1	1-4	25.00
Children's Hospital[2]	Buffalo	E. G. Winkler	OB	3,077				2	1/1, 7/1	1	25.00
Edward J. Meyer Memorial Hospital★[1, 4]	Buffalo	E. G. Winkler	OBG	904	622	3,381	2,074	4	7/1	3	100.00
Millard Fillmore Hospital★[3]	Buffalo	L. F. McLean	OB	4,407							
			Gyn†		1,426			4		1-4	50.00
Sisters of Charity Hospital★[1]	Buffalo	E. G. Winkler	OB†	4,714				3	7/1	1	
Queens General Hospital★[2, 4]	Jamaica, N. Y.	E. A. Hemming	OBG	2,145	1,081	6,793	2,351	4	7/1	3	70.00
Bellevue Hospital, Div. III—N. Y. Univ.★[1, 4]	New York City	W. E. Studdiford	OBG	1,538b	2,000b	10,233b	5,500	13	7/1	1	45.00
Beth Israel Hospital★[1, 4]	New York City	E. G. Langrock	OB†	2,970		3,806		3	7/1	1-3	50.00
		H. C. Falk	Gyn		1,056		1,732	3	7/1	1-3	50.00
Bronx Hospital★[1, 4]	New York City	M. Rosensohn	OB†	3,446		3,471		2	7/1	1-3	75.00
Flower and Fifth Avenue Hospitals★[3, 4]	New York City	L. S. Loizeaux, Sr.	OBG	2,089	1,352	4,159	1,166	2	6/1	1	None
Fordham Hospital★[1, 4]	New York City	M. L. Brandt	OB	905b				3	1/1, 7/1	1½	120.00
French Hospital★[2, 4]	New York City	H. C. Williamson	OB	1,701		4,895		2	7/1	1-2	83.33
Harlem Hospital★[3, 4]	New York City	F. A. Kassebohm	OB	4,318		23,391		2	4/1	1	
		H. C. Falk	Gyn		2,090		9,406	3	1/1, 7/1	1	70.00
Hospital for Joint Diseases★[1]	New York City	H. B. Davidson	Gyn†		582		3,005	1	1/1, 7/1	1	40.00
Lenox Hill Hospital★[2, 4]	New York City	R. C. Van Etten	OB(G)†	1,619	835			3	Varies	3	50.00
Lincoln Hospital★[2, 4]	New York City	H. C. Ingraham	OBG	2,081	1,091	10,467	4,158	6		1-3	60.00
Lying-In Hospital	New York City		OBG	(See New York Hospital)							
Metropolitan Hospital★[2, 4]	New York City	H. B. Safford	OBG	1,638	1,025	9,900	4,261	3	7/1	1-2	70.00
Morrisania City Hospital★[2, 4]	New York City	M. Goodfriend	OB	969		3,229		3	7/1	2	60.00
Mount Sinai Hospital★[2, 4]	New York City		Gyn					4	4/1, 7/1	1½	50.00
New York City Hospital★[2, 4]	New York City	R. J. Lowrie and J. V. Ricci	OBG	1,248	857	9,864	3,292	3	7/1	1-3	70.00
New York Hospital★[1, 4]	New York City	H. Stander	OBG	6,788		28,410	14,558	13	1/1, 7/1	1-5	12.50
New York Infirmary★[2, 4]	New York City	W. Ragland	OB	1,161		4,738		2	7/1	1+	75.00
New York Polyclinic Medical School and Hospital★[2]	New York City	E. H. Denner	OB	1,387				1	7/1	2	25.00
		D. N. Barrows	Gyn		1,078			1	7/1	2	25.00
New York Post-Graduate Medical School and Hospital★[2, 4]	New York City	W. T. Dannreuther	Gyn		681		12,332	2	10/1	2	30.00
Presbyterian Hospital★[1, 4]	New York City	H. C. Taylor, Jr.	OBG	4,135	1,475	18,181	14,284	14		1½-3	41.66
Roosevelt Hospital★[2, 4]	New York City	T. C. Peightal	Gyn	909		2,915		1	7/1	1	103.33
St. Clare's Hospital★[2, 4]	New York City	M. J. Jordan	OBG†	1,733	688	2,926	1,255	3	7/1	2	25.00
St. Vincent's Hospital★[2, 4]	New York City	J. F. McGrath	OBG	2,593	1,042	5,390	2,369	3	7/1	1-3	50.00
Sloane Hospital for Women[1]	New York City		(See Presbyterian Hospital)								
Woman's Hospital[1, 4]	New York City	A. H. Aldridge	OBG	3,241	2,212	10,497	20,082	11	Varies	1-2	10.00
Genesee Hospital★[1]	Rochester, N. Y.	S. R. Snow, Jr.	OB†	1,406		457		1	7/1	1	41.66
Highland Hospital★[1, 4]	Rochester, N. Y.	J. B. Loder	OB	1,901				1	7/1	1-2	100.00
Rochester General Hospital★[1, 4]	Rochester, N. Y.	M. Wilkinson	OB	3,082		1,775		1	7/1	1-2	70.00
Strong Memorial and Rochester Municipal Hospitals★[1, 4]	Rochester, N. Y.	K. M. Wilson	OBG	2,393	1,328	3,811	3,543	5	Varies	1-4	41.66
General Hospital★[1]	Syracuse, N. Y.	R. J. Pieri	OB	1,693				1	7/1	1	35.00
		R. J. Pieri	Gyn†		372			1	7/1	1	35.00
Syracuse Memorial Hospital★[1]	Syracuse, N. Y.	E. C. Hughes	OB	2,750				3		1-3	
		C. E. Clark	Gyn		1,159			3		1-3	
Charlotte Memorial Hospital★[1, 4]	Charlotte, N. C.	E. W. Franklin, Jr.	OBG	1,463	828	1,010	530	1	7/1	1-3	75.00
Duke Hospital★[3, 4]	Durham, N. C.	B. Carter	OBG	1,948	1,152	7,575	7,881	10	7/1	1	83.33
Watts Hospital★[1]	Durham, N. C.	E. B. Easley	OBG†	1,785	845	434	188	1	7/1	1	75.00
James Walker Memorial Hospital★[1]	Wilmington, N. C.		OB	2,422		183		1	7/1	1-2	100.00
North Carolina Baptist Hospital★[3, 4]	Winston-Salem, N. C.	F. R. Lock	OBG	1,509	541	1,539	1,744	5		1-3	
City Hospital★[1]	Akron, Ohio		OBG	5,491	1,514			5	7/1	1-3	100.00
Peoples Hospital★[1, 4]	Akron, Ohio	L. L. Bottsford	OB†	3,422		346		3	7/1	1-2	100.00
St. Thomas Hospital★[1]	Akron, Ohio	L. DaSef	OB	2,516		391		2	7/1	1	125.00
Aultman Hospital★[1, 4]	Canton, Ohio	K. E. Greenwalt	OBG†	3,689	674			7	7/1	1-4	75.00
Mercy Hospital★[1]	Canton, Ohio	R. K. Ramsayer and L. E. Leavenworth	OBG	2,622	804			4	7/1	1-3	100.00
Bethesda Hospital[1, 4]	Cincinnati	R. L. Bryant and R. W. Eddy	OBG	3,366	903		31	3	7/1	3	150.00

Numerical and other references will be found on page 69

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated[a1]		Outpatient Visits		Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
				OB	Gyn	OB	Gyn				
Cincinnati General Hospital★[3,4]	Cincinnati	S. Garber	OB	3,268	......	5,705	......	5	7/1	3	......
City Hospital★[3,4]	Cleveland	A. H. Bill	OB	1,836	......	2,370	......	3	7/1	1-3	$60.00
Fairview Park Hospital★[1,4]	Cleveland	E. D. Saunders	OB	2,083	......	53	......	2	7/1	1	100.00
Lutheran Hospital★[1,4]	Cleveland	R. S. Dial	OB	1,650	......	......	......	1	7/1	1-2	125.00
Mount Sinai Hospital★[3,4]	Cleveland	J. L. Bubis	OB	1,884	......	396	......	1	7/1	1	100.00
		J. L. Bubis	Gyn	......	839	......	445	1	7/1	1	100.00
St. Ann's Maternity Hospital[1]	Cleveland	H. C. Wise	OB	2,606	......	236	......	2	....	1	100.00
St. John's Hospital★[1]	Cleveland	C. A. O'Connell	OB†	2,400	......	72	......	3	7/1	1	......
St. Luke's Hospital★[3]	Cleveland	C. T. Hemmings	OBG	3,010	874	1,925	1,639	4	7/1	1-4	60.00
University Hospitals★[3,4]	Cleveland	A. H. Bill	OB	4,560	......	18,248	......	5	7/1	1-3	25.00
		A. H. Bill	Gyn	......	1,782	......	5,768	5	7/1	1-3	25.00
tal[1]	Columbus, Ohio	R. E. Krigbaum	OB†	1,651	......	......	......	2	....	1	100.00
	Columbus, Ohio	A. C. Barnes	OBG	2,242	767	5,916	2,257	3	7/1	1-3	50.00
White Cross Hospital★[2,4]	Columbus, Ohio	W. D. Inglis	OB	3,743	......	......	......	2	1/1	1-2	100.00
Miami Valley Hospital★[1]	Dayton, Ohio	J. K. Hoerner	OB†	3,583	......	......	......	1	7/1	1	......
Huron Road Hospital★	East Cleveland, Ohio	A. G. Cummings G. H. Irvin	OBG	3,160	1,385	55	193	5	7/1	1	80.00
Lakewood Hospital★[1]	Lakewood, Ohio	B. Wylie	OB	1,357	......	31	......	1	7/1	1	100.00
Maumee Valley Hospital★[1]	Toledo, Ohio	E. C. Mohr	OBG	593	328	577	293	2	7/1	1	150.00
Mercy Hospital★[1]	Toledo, Ohio	R. C. King and J. E. Miller	OBG	3,030	1,081	......	......	1	7/1	1-3	110.00
St. Vincent's Hospital★[1,4]	Toledo, Ohio	M. Diethelm	OB	2,991	...	86	....	2	7/1	1-3	100.00
Toledo Hospital★[2,4]	Toledo, Ohio	M. D. Haag	OBG	2,813	479	814	99	3	7/1	1-3	125.00
St. Elizabeth's Hospital★[1,4]	Youngstown, Ohio	P. L. Boyle	OBG†	3,009	988	41	151	2	7/1	1-3	125.00
University Hospitals★[3]	Oklahoma City	J. B. Eskridge and G. Penick	OBG	1,192	432	5,483	3,467	3	7/1	1-3	35.00
Wesley Hospital★[1]	Oklahoma City	J. W. Record	OBG†	1,431	850	1,500	600	2	7/1	1	150.00
St. John's Hospital★[1]	Tulsa, Okla.	......	OB	2,356	......	......	......	1	7/1	1	......
Emanuel Hospital★[3]	Portland, Ore.	G. Nelson	OB[1]†	5,193	......	......	......	1	7/1	1-3	75.00
			Gyn[1]†	......	1,413	......	......	1	7/1	1-3	75.00
Good Samaritan Hospital★[1]	Portland, Ore.	T. W. Adams	OB	2,713	......	......	......	1	7/1	1	75.00
Univ. of Oregon Med. School Hospitals and Clinics★[3,4]	Portland, Ore.	H. C. Stearns	OBG	751	467	4,051	2,322	5	7/1	3	75.00
Abington Memorial Hospital★[1]	Abington, Pa.	......	OBG†	1,001	603	1,929	860	1	7/1	1-2	50.00
St. Luke's Hospital★[1]	Bethlehem, Pa.	T. E. Schadt	OBG†	716	......	397	......	2	7/1	1-2	100.00
Bryn Mawr Hospital★[1]	Bryn Mawr, Pa.	C. A. Behney	OBG†	280	......	166	......	1	7/1	1	75.00
George F. Geisinger Memorial Hospital★[1]	Danville, Pa.	R. E. Nicodemus	OB	2,409	......	9,449	......	2	7/1	1-3	75.00
Harrisburg Hospital★[1]	Harrisburg, Pa.	P. W. Dailey	OB†	2,491	......	2,334	......	1	7/1	1-2	100.00
Episcopal Hospital★[1,4]	Philadelphia	E. A. Schumann	OBG	3,054	961	8,483	1,307	3	....	1-3	50.00
Germantown Dispensary and Hospital★[1]	Philadelphia	J. C. Hartman Z. B. Newton	OB†	2,458	......	3,558	......	1	7/1	1-2	50.00
Graduate Hosp. of the Univ. of Pa.★[3]	Philadelphia	R. Kimbrough	Gyn	776	......	1,479	......	2	7/1	3	25.00
Hahnemann Hospital★[2,4]	Philadelphia	N. F. Paxson and E. C. Hessert	OBG	3,509	1,150	......	......	.5	....	1-3	50.00
Hospital of the Univ. of Pennsylvania★[3,4]	Philadelphia	C. Bachman and F. L. Payne	OBG	2,061	1,804	9,300	3,615	6	3/1, 9/1	3	50.00
Hospital of the Women's Medical College of Pennsylvania★[2,4]	Philadelphia	A. G. Taylor	OB†	1,691	......	7,939	......	2	7/1	2-3	50.00
		M. DeW. Pettit	Gyn	......	653	......	3,918	2	7/1	2-3	50.00
Jefferson Medical College Hospital★[3]	Philadelphia	L. C. Scheffey and N. W. Vaux	OBG	2,395	2,397	13,341	6,096	7	....	1	......
	Philadelphia	......	OBG†	1,880	......	......	......	1	....	1-2	......
	Philadelphia	R. B. Wilson	OB†	1,205	......	4,267	......	1	7/1	1-3	50.00
	Philadelphia	......	OBG	910	535	1,933	978	1	7/1	1-2	50.00
	Philadelphia	C. B. Lull	OBG	3,468	1,367	12,314	3,455	6	1/1, 7/1	1-3	20.00
[4]	Philadelphia	......	OBG	2,460	1,700	......	......	3	....	1-3	70.00
	Philadelphia	J. R. Willson	OBG	2,747	920	5,380	2,400	6	7/1	3	50.00
Woman's Hospital★[1,4]	Philadelphia	......	OB	2,374	......	7,973	......	1	7/1	1	50.00
			Gyn	......	584	......	1,856	2	7/1	1	50.00
Women's Homeopathic Hospital★[1]	Philadelphia	B. F. Biscoe and W. C. Mercer	OBG†	805	454	1,959	757	2	7/1	1	150.00
Elizabeth Steel Magee Hospital[3,4]	Pittsburgh	C. J. Barone and B. Z. Cashman	OBG	5,607	2,314	3,115	1,247	9	7/1	1-3	41.67
Mercy Hospital★[2]	Pittsburgh	R. A. D. Gillis and R. J. Froley	OBG†	2,570	879	579	608	1	9/1	1-2	100.00
Montefiore Hospital★[1]	Pittsburgh	H. M. Cohen and S. Goldstein	OBG	1,211	735	964	997	1	7/1	1-2	50.00
Pittsburgh Hospital★[1]	Pittsburgh	......	OBG†	1,178	640	430	107	1	7/1	1	......
St. Francis Hospital★[3,4]	Pittsburgh	J. H. Carroll	OB	2,331	......	459	......	2	7/1	3	110.00
		B. Z. Cashman	Gyn	......	865	......	606	1	7/1	3	110.00
St. Margaret Memorial Hospital★[1]	Pittsburgh	P. Titus	OBG†	627	......	......	......	1	9/1	1	100.00
Reading Hospital★[1,4]	Reading, Pa.	H. H. Muhlenberg and F. B. Nugent	OBG†	2,714	818	383	380	1	7/1	1	100.00
Providence Lying-In Hospital[1]	Providence, R. I.	A. L. Potter	OB†	1,348	......	11,246	......	2	6/1, 12/1	1	50.00
Roper Hospital★[3,4]	Charleston, S. C.	L. A. Wilson and F. G. Cain	OBG	1,854	590	5,957	2,297	3	7/1	1-4	25.00
Greenville General Hospital★[1]	Greenville, S. C.	J. D. Guess	OBG†	2,487	1,424	1,013	281	3	7/1	1	75.00
Baroness Erlanger Hospital★[1,4]	Chattanooga, Tenn.	E. F. Buchner	OB	3,744	......	5,943	......	3	7/1	1	90.00
Baptist Memorial Hospital★[1]	Memphis, Tenn.	W. A. Ruch	OBG†	2,193	1,180	109	354	1	7/1	1-2	75.00
John Gaston Hospital★[3]	Memphis, Tenn.	F. E. Whitacre	OB	3,962	......	9,072	......	5	7/1	3	......
		F. E. Whitacre	Gyn	......	815	......	7,142	5	7/1	3	......
Methodist Hospital★[1,4]	Memphis, Tenn.	C. G. Bringle	OB	713	......	......	......	1	7/1	1	150.00
St. Joseph Hospital★[2]	Memphis, Tenn.	M. J. Roach	OBG	1,823	894	516	222	2	....	1-2	100.00
George W. Hubbard Hospital of Meharry Medical College★[2]	Nashville, Tenn.	W. F. B. James	OBG	807	363	2,415	761	3	7/1	1-3	75.00
Nashville General Hospital★[1]	Nashville, Tenn.	M. S. Lewis and C. S. McMurray	OBG	1,324	624	5,649	5,089	3	7/1	1-3	40.00
Vanderbilt University Hospital★[3,4]	Nashville, Tenn.	J. C. Burch	OBG	2,225	601	7,211	5,796	7	7/1	1	......
Baylor University Hospital★[3,4]	Dallas, Texas	W. K. Strother	OBG	6,356	957	3,895	1,125	3	7/1	1-3	50.00
Parkland Hospital★[3,4]	Dallas, Texas	W. Mengert	OBG	2,825		11,400		8	7/1	1-3	50.00
Hotel Dieu, Sisters Hospital (St. Joseph's Maternity Hospital)[1]	El Paso, Texas	E. C. Bernell	OBG†	1,293		19,783		1	1/1	1	150.00
Harris Memorial Methodist Hospital★[1,4]	Fort Worth, Texas	R. L. Grogan	OBG†	3,119	1,302	1,275	531	4	7/1	1-3	100.00
John Sealy Hospital (Univ. of Texas Medical Branch)★[3,4]	Galveston, Texas	W. R. Cooke	OBG	1,121	643	8,756		4	....	1-3	50.00

Numerical and other references will be found on page 89

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated[4]		Outpatient Visits		Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
				OB	Gyn	OB	Gyn				
Hermann Hospital★[2, 4]	Houston, Texas	A. L. Dippel and C. Pugsley	OBG	1,620	1,375	5,907	2,814	6	....	3	$ 50.00
Jefferson Davis Hospital★[2, 4]	Houston, Texas	E. A. Chandler and C. Hamilton	OBG†	2,118	972	7,335	3,681	4	7/1	1-3	50.00
Memorial Hospital[2, 4]	Houston, Texas	E. A. Chandler and W. E. Ramsay	OBG	2,578	......	......	......	2	....	1-3	....
Methodist Hospital★[2, 4]	Houston, Texas	D. Y. Wachsman and J. A. Wall	OBG	1,047	598	2,444	275	3	7/1	1-3	75.00
St. Joseph's Infirmary[2]	Houston, Texas	G. Adam	OB	7,289	......	......	......	3	....	1-3	150.00
Thomas D. Dee Memorial Hospital★[2]	Ogden, Utah	V. L. Ward	OB(G†)	3,129	721	117	700	2	7/1	2-3	100.00
Dr. W. H. Groves Latter-Day Saints Hosp.★[1]	Salt Lake City	W. M. Nebeker	OBG	4,619	960	......	......	3	7/1	1-3	100.00
Holy Cross Hospital★[1, 4]	Salt Lake City	R. Wherritt	OB†	2,834	......	......	......	1*	7/1	1	75.00
Salt Lake General Hospital★[1, 4]	Salt Lake City	E. G. Holmstrom	OBG	461	318	1,129	776	2	7/1	1-3	50.00
Mary Fletcher Hospital★[1]	Burlington, Vt.	H. A. Durfee	OBG†	1,134	548	......	......	2	11/1	1+	100.00
Alexandria Hospital★	Alexandria, Va.	H. Picot	OBG†	2,610	370	......	......	2	7/1	1	100.00
University of Virginia Hospital★[2, 4]	Charlottesville, Va.	W. N. Thornton, Jr. and J. M. Nokes	OBG	2,610		6,839		4	7/1	1-4	62.00
DePaul Hospital★[1, 4]	Norfolk, Va.	J. R. Kight	OBG	2,455	941	246	260	2	7/1	.....	75.00
Norfolk General Hospital★[2, 4]	Norfolk, Va.	C. J. Andrews	OB†	1,898	......	238	......	1	7/1	1	75.00
Medical College of Virginia, Hosp. Div.★[2, 4]	Richmond, Va.	H. H. Ware	OB	4,777	......	8,983	......	8	7/1	1	....
King County Hospital★[2]	Seattle, Wash.	C. M. Helwig	OBG	1,090	675	4,744	2,220	1	7/1	3	125.00
Providence Hospital★[1]	Seattle	J. Claney	OB	2,652	......	499	......	1	7/1	1	100.00
Swedish Hospital★[2]	Seattle	W. W. Bell	OBG	3,272	774	......	......	1	3/1	1	100.00
Virginia Mason Hospital★[1]	Seattle	R. Rutherford and D. H. Houston	OB	1,688	......	......	......	1	....	1-2	75.00
St. Luke's Hospital★[1]	Spokane	R. E. Gillett	OBG†	1,232	1,051	667	......	2	7/1	1	125.00
Northern Permanente Hospital★[1]	Vancouver, Wash.	R. George	OBG	713	298	1,065	1,168	1	7/1	1	150.00
St. Mary's Hospital★[1, 4]	Huntington, W. Va.	C. H. Boso	OB	2,174	......	782	......	1	7/1	1	100.00
State of Wisconsin General Hospital★[2, 4]	Madison, Wis.	J. W. Harris	OBG	497	650	7,661		3	7/1	3	25.00
Milwaukee County Hospital★[2, 4]	Milwaukee	R. S. Cron	OBG	590	369	1,599	1,689	1	Varies	1-3	82.26
Milwaukee Hospital★[1]	Milwaukee	H. W. Shutter	OBG†	2,914	987	......	......	3	7/1	3	70.00
St. Joseph's Hospital★[1]	Milwaukee	H. Olson	OBG	3,433	......	......	......	2	10/1	3	75.00
St. Mary's Hospital★[1]	Milwaukee	R. W. Roethke and D. Witte	OBG†	1,731	826	......	......	1	....	1	125.00
Kapiolani Maternity and Gynecological Hospital[1]	Honolulu, Hawaii	H. E. Bowles	OB	3,995	......	......	......	3	2/1, 7/1	1	150.00

13. OCCUPATIONAL MEDICINE

Approval of residencies in Occupational Medicine has been authorized by the American Medical Association. Institutions desiring residency approval in this field should make application to the Council on Medical Education and Hospitals, 535 N. Dearborn Street, Chicago 10, Illinois.

14. OPHTHALMOLOGY AND OTOLARYNGOLOGY

The following services approved by the Council are acceptable to the American Board of Ophthalmology and the American Board of Otolaryngology respectively.

Hospitals, 165; Assistant Residencies and Residencies, 738

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated[4]		Outpatient Visits		Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
				Oph.	Otol.	Oph.	Otol.				
United States Army											
Letterman General Hospital★	*San Francisco*	*E. Maxwell*	Oph	344	.....	5,150	......	3	1/1	1-3	*n*
			Otol		874	......	7,084	4	1/1	1-2	....
Fitzsimons General Hospital★	Denver	A. J. Vadala	Oph	198	.....	4,768	......	3	1/1	1-3	....
			Otol	.....	408	......	11,128	2	1/1	1-2	*n*
Walter Reed General Hospital★	Washington, D.C.	F. E. Hamilton	Oph	368	.....	30,102	......	3	1/1	1-3	*n*
Oliver General Hospital★	Augusta, Ga.	W. C. Roynls	Oph	180	.....	5,626	......	3	1/1	1-3	*n*
Brooke General Hospital★	San Antonio, Texas	H. S. Murphey	Oph	486	.....	12,655	......	2	1/1	1-3	....
			Otol†	.....	1,169	......	13,294	3	1/1	1-3	*n*
Gorga [illegible]	Ancon, C.Z.	B. T. Bowers	Oph	303	.....	9,000	......	2	1/1	1-3	*n*
U. S. [illegible]	Long Beach, Calif.	R. C. Boyden	Oph	236	.....	3,469	......	2	Varies	1	*n*
U. S. [illegible]	Oakland, Calif.	....	Oph	312	.....	......	......	1	....	1	*n*
U. S. [illegible]	San Diego, Calif.	O. W. Chenault	Oph	385	.....	6,145	......	2	....	1	*n*
U. S. [illegible]	Bethesda, Md.	A. J. Delaney	Oph	.....	.....	......	......	1	Varies	1-3	....
		A. J. Delaney	Otol†	.....	.....	......	......	1	Varies	1-3	*n*
U. S. Naval Hospital★	St. Albans, N.Y.	W. L. Berkley	Oph	192	.....	......	......	2	10/1	1-3	*n*
U. S. Naval Hospital★	Philadelphia	F. Harbert	Oph	327	.....	11,400	......	1	....	1	....
		F. Harbert	Otol†	......	990	......	14,316	1	Varies	1	*n*
United States Public Health Service											
†U. S. Marine Hospital★	New Orleans	....	Otol	.....	548	......	......	2	1/1	1-2	*n*
Veterans Administration											
Veterans Admin. Hospital	San Francisco	M. Fine and D. O. Harrington	Oph	112	.....	3,523	......	3	7/1	1-3	$275.00
Veterans Admin. Hospital	Chamblee, Ga.	R. T. Shields	Oph	180	.....	......	......	1	7/1	1-3	275.00
		R. T. Shields	Otol†	.....	250	......	......	1	7/1	1-3	275.00
†Veterans Admin. Hospital	Hines, Ill.	W. A. Mann	Oph	570	.....	......	......	3	....	1-3	275.00
		F. L. Lederer	Otol	.....	1,063	......	......	8	....	1-3	275.00
†Veterans Admin. Hospital	Topeka, Kans.	H. W. Powers	Otol	.....	198	......	......	1	7/1	1-3	275.00
†Veterans Admin. Hospital	New Orleans	E. G. Walls	Otol	.....	272	......	744	2	7/1	1-3	275.00
†Veterans Admin. Hospital	Minneapolis	H. V. Hanson and L. Boies	Otol	.....	607	......	......	5	....	1	275.00
Veterans Admin. Hospital	New York City	....	Oph	479	.....	3,426	......	5	1/1, 7/1	1-3	275.00
†Veterans Admin. Hospital	Portland, Ore.	R. A. Fenton	Otol	.....	331	......	......	1	7/1	1-3	275.00
Veterans Admin. Hospital	*Aspinwall, Pa.*	J. G. Linn	Oph	128	.....	......	......	3	7/1	1-3	275.00
		F. A. Lanson	Otol†	.....	228	......	......	2	7/1	1-3	275.00
Veterans Admin. Hospital	Dallas, Texas	M. Thomas	Oph	379	.....	1,766	......	1	Varies	2-3	275.00
		C. D. Winborn	Otol†	.....	659*b*	......	2,625*b*	1	Varies	2-3	275.00
Veterans Admin. Hospital	McKinney, Texas	H. W. Hardin	Oph	.....	.....	......	......	1	7/1	2-3	275.00
Veterans Admin. Hospital	Milwaukee	J. B. Hitz	Oph	194	.....	3,889	......	1	7/1	1-3	275.00
		W. E. Grove	Otol†	.....	485	......	3,507	4	7/1	1-3	275.00

14. OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated[6] Oph.	Inpatients Treated[6] Otol.	Outpatient Visits Oph.	Outpatient Visits Otol.	Asst. Res. and Residencies Offered[7]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Jefferson-Hillman Hospital★	Birmingham, Ala.	A. Callahan	Oph	559	....	3,281	......	2	7/1	1-2	$ 50.00
		G. E. Fisher	Otol†	.....	875	......	4,210	3	7/1	1-2	50.00
†Baptist State Hospital★	Little Rock, Ark.	K. W. Cosgrove	Otol	.....	848	......	......	3	Varies	3	......
Childrens Hospital★	Los Angeles	J. M. Brown	Otol	.....	987	.....	1,711	1	7/1	1-3	None
Los Angeles County Hospital★[1]	Los Angeles	W. G. Endres	Oph	926	.....	12,039	......	2	Varies	2	165.00
		P. Viole	Otol	...	2,121	.....	8,053	2	Varies	2	165.00
White Memorial Hospital★	Los Angeles	W. A. Boyce	Oph	168	....	6,315	.....	1	....	1-2	147.33
		B. N. Colver	Otol	.....	1,026	......	9,223	2	....	1-2	147.33
San Diego County General Hospital★	San Diego, Calif.	G. Kilgore and C. W. Brown	Op Ot	392		1,365	1,457	2	7/1	1	215.00
Children's Hospital★[1]	San Francisco	R. C. Martin	Op Ot	1,145		......	......	1	7/1	1	50.00
Greens' Eye Hospital	San Francisco	V. V. Sughan	Oph	953	.....	57,040	.....	2	7/1	1-3	50.00
		L. Z. Fishman	Otol	.....	322	......	11,385	1	7/1	1-3	50.00
San Francisco Hospital★[1]	San Francisco	....	Op Ot	768		......	......	4	....	1	175.00
Stanford University Hospitals★[1]	San Francisco	A. E. Maumenee	Oph	733	.....	7,965	......	3	7/1	1-3	50.00
		R. C. McNaught	Otol	...	805	......	8,752	2	7/1	1-3	50.00
University of California Hospital★[1]	San Francisco	F. C. Cordes	Oph	347	....	13,421	....	3	Varies	1	50.00
		L. F. Morrison	Otol	.....	724	......	7,030	3	Varies	1	50.00
University of Colorado Medical Center	Denver	W. M. Bane	Oph	130	.....	7,036	......	2	1/1, 7/1	1-2	75.00
Colorado General Hospital★[4]		H. L. Hickey	Otol	.....	282	......	3,742	1	1/1, 7/1	1-2	75.00
Grace-New Haven Community Hospital	New Haven, Conn.	E. Blake	Oph†	319	.....	5,344	......	1	7/1	1	40.00
New Haven Unit (University Service)★[1]		N. Canfield	Otol	.....	745	......	5,703	2	7/1	1	40.00
†Hospital of St. Raphael★	New Haven, Conn.	C. T. Flynn	Otol	.....	1,261	......	51	2	7/1	1	75.00
Episcopal Eye, Ear and Throat Hospital[4]	Washington, D. C.	J. N. Greear	Oph	.....	.....	......	......	5	4/1	2	25.00
		W. H. Jenkins	Otol	.....	....	.....	......	4	1/1	2	25.00
Gallinger Municipal Hospital★[1]	Washington, D. C.	E. Cummings and S. Burtoff	Op Ot	62	803	1,852	7,926	4	7/1	1-2	75.00
Grady Memorial Hospital★[4]	Atlanta, Ga.	A. V. Hallum and W. C. Warren	Op Ot	444	864	9,494	8,964	6	7/1	1	20.00
Cook County Hospital★[4]	Chicago	D. T. Vail	Oph	456	.....	18,183	......	7	1/1, 7/1	1-3	27.50
		S. J. Pearlman	Otol	.....	1,764	.....	21,751	5	1/1, 7/1	1-3	27.50
Illinois Eye and Ear Infirmary[4]	Chicago	J. B. Youman	Oph	2,010	.....	47,515	......	15	1/1	1-1½	None
		J. B. Youman	Otol	.....	1,913	......	23,363	10	1/1	1	None
Mercy Hospital-Loyola University Clinics★	Chicago	R. W. Kerwin	Op Ot	1,012		1,964		1	7/1	1	25.00
Michael Reese Hospital★[1]	Chicago	S. J. Myer	Oph	449	...	3,037	....	2	1/1, 7/1	1	25.00
		W. Smiley	Otol	..	1,110	......	1,461	1	7/1	1	25.00
Passavant Memorial Hospital★[1]	Chicago	D. Vail	Oph	438	...	....	......	2	....	1	None
		J. Delph	Otol	...	169	....	......	1	....	1	None
Presbyterian Hospital★	Chicago	J. M. Donegan	Oph	381	....	4,065	....	2	7/1	1-2	25.00
		S. A. Friedberg	Otol	.....	936	......	3,824	2	5/1, 7/1	1-2	25.00
Provident Hospital★[4]	Chicago	C. L. Forney	Op Ot	413		5,401	1,519	2	7/1	1-3	25.00
Research and Educational Hospitals★	Chicago	W. F. Hughes	Oph	230	.....	7,925	......	2	7/1	1-2	55.00
		F. E. Lederer	Otol	....	607	.....	8,947	2	7/1	1-2	55.00
†St. Joseph Hospital★[4]	Chicago	J. M. Donegan	Oph	144	.....	825	......	1	4/1	1-3	75.00
St. Luke's Hospital★[4]	Chicago	R. C. Gamble and A. J. Coombs	Op Ot	399	688	1,146	1,198	2	7/1	1-2	25.00
University of Chicago Clinics★	Chicago	A. Krause	Oph	174	....	11,750	....	6	7/1	1-4	25.00
		J. R. Lindsay	Otol	..	433	....	9,306	2	7/1	1-2	25.00
Wesley Memorial Hospital★[4]	Chicago	W. A. Mann	Oph	383	.....	......	......	2	1/1, 7/1	1-3½	25.00
		T. P. O'Connor	Otol†	...	1,076	......	......	1	1/1, 7/1	1-3½	25.00
Woodlawn Hospital★[4]	Chicago	F. M. Whitsell	Oph	168	.....	....	......	1	1/1	1-3	200.00
Indianapolis General Hospital★	Indianapolis	J. M. Masters	Oph	193	..	6,045	....	3	7/1	1-2	70.00
		R. M. Dearmin	Otol	....	612	....	4,126	2	7/1	1-2	70.00
Indiana University Medical Center★[1]	Indianapolis	R. M. Masters	Oph	272	....	2,961	....	7	7/1	1	33.33
		C. H. McCaskey	Otol	.....	496	...	1,858	3	7/1	1	33.33
University Hospitals★[1]	Iowa City	C. S. O'Brien	Oph	1,182	....	6,177	....	10	7/1	1	50.00
		D. M. Lierle	Otol	.....	2,076	......	7,073	9	7/1	3	50.00
University of Kansas Hospitals★[1]	Kansas City, Kan.	S. E. Roberts	Otol	.....	825	......	2,192	1	....	1	......
Louisville General Hospital★	Louisville, Ky.	C. Townes and J. S. Bumgardner	Op Ot	152	61	5,539	3,381	1	7/1	1	45.00
Charity Hospital of Louisiana★[1]	New Orleans	....	Op Ot	1,248	1,955	16,194	18,166	13	7/1	1-3	25.00
Eye, Ear, Nose and Throat Hospital[4]	New Orleans	W. R. Buffington	Oph	1,387	.....	16,846	......	7	7/1	1	......
		F. E. LeJeune	Otol	.....	4,468	......	25,168	6	7/1	1	......
Touro Infirmary★	New Orleans	E. E. Allgeyer and S. Cohen	Op Ot	76	674	1,770	1,807	1	7/1	1	17.50
Baltimore Eye, Ear and Throat Charity Hospital[4]	Baltimore	....	Op Ot	4,075		11,556	7,278	5	7/1	2	10.00
Johns Hopkins Hospital★[1]	Baltimore	A. C. Woods	Oph	1,588	....	18,997	.....	7	....	1+	......
		S. J. Crowe	Otol	....	1,280	......	12,271	4	....	1+	......
†South Baltimore General Hospital★	Baltimore	S. L. Fox	Otol	.....	650	......	1,356	2	7/1	1-2	75.00
University Hospital★[1]	Baltimore	C. Clapp and E. A. Looper	Op Ot	23	786	4,110	2,663	1	7/1	1-2	......
Beth Israel Hospital★	Boston	G. B. Fred	Otol	.....	747	......	2,264	1	10/1	1	41.66
Boston City Hospital★[1]	Boston	J. J. Regan and E. J. Monahan	Op Ot	544	2,774	14,906	14,422	2	....	1	66.67
Lahey Clinic	Boston	W. B. Hoover	Otol	.....	.....	......	......	2	....	1-3	......
Massachusetts Eye and Ear Infirmary[4]	Boston	E. B. Dunphy	Oph	1,874	....	42,399	......	12	Varies	2+	......
		L. A. Schall	Otol	.....	2,170	......	30,171	9	Varies	2+	......
†Massachusetts Memorial Hospitals★[1]	Boston	L. F. Johnson	Otol	.....	...	......	686	1	Varies	1	50.00
Memorial Hospital★[1]	Worcester, Mass.	A. L. Caron	Otol	....	2,030	....	793	1	....	1-2	100.00
University Hospital★[1]	Ann Arbor, Mich.	F. B. Fralick	Oph	588	....	13,800	.....	4	....	.....	......
		A. C. Furstenberg	Otol	.....	758	......	9,889	4	7/1	1-5	111.40
City of Detroit Receiving Hospital★[1]	Detroit	A. D. Ruedemann and J. M. Robb	Op Ot	222	778	10,682		4	7/1	1+	167.00
Grace Hospital★	Detroit	R. S. Goux	Op Ot	1,146		2,445		2	7/1	1-3	75.00
Harper Hospital★[4]	Detroit	R. H. Pino and J. M. Robb	Op Ot	1,204	652	4,446	1,256	6	7/1	1	118.00
Henry Ford Hospital★[1]	Detroit	E. L. Whitney	Oph	359	.....	16,321	......	3	7/1	1-3	200.00
		J. L. Dill	Otol	.....	1,160	......	18,372	3	7/1	1-3	200.00
Wayne County General Hospital and Infirmary★[1]	Eloise, Mich.	F. L. Ryerson	Op Ot	580	.....	4,252	......	2	7/1	1	216.25
Minneapolis General Hospital★[1]	Minneapolis	W. K. Haven and R. E. Priest	Op Ot	102	131	2,956	1,965	3	1/1, 7/1	1-3	115.00

Numerical and other references will be found on page 89

14. OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated[6]		Outpatient Visits		Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
				Oph.	Otol.	Oph.	Otol.				
University Hospitals★[4]	Minneapolis	E. Hansen	Oph	221	.....	5,768	.....	12	7/1	1-3	$115.00
		L. R. Boies	Otol	.....	326	.....	1,141	8	7/1	1-3	115.00
Mayo Foundation	Rochester, Minn.	W. L. Benedict	Oph	(See page 89)				8	....	1-3	......
		H. I. Lillie	Otol	.....	.....	......	......	10	....	1-3	......
Ancker Hospital★[4]	St. Paul	B. O'Reilley	Op Ot	102	290	2,033	1,742	1	11/1	3	91.50
Charles T. Miller Hospital★	St. Paul	F. Burch	Oph	1,002	.....	3,591	......	2	Varies	1-3	115.00
†St. Louis County Hospital★	Clayton, Mo.	J. Green	Oph	82	.....	1,853	......	1	7/1	1-3	80.00
Children's Mercy Hospital	Kansas City, Mo.	D. Underwood and J. Howard	Op Ot	113		938	1,330	1	....	1	......
Kansas City General Hospital No. 1★	Kansas City, Mo.	A. J. Baer	Oph	141	.....	3,075	......	2	7/1	1-2	50.00
		J. S. Knight	Otol	.....	528	......	3,070	1	1/1	1-2	50.00
Barnes Hospital★[4]	St. Louis	L. T. Post	Oph	1,435	.....	2,165	......	7	7/1	1-3	......
		T. E. Walsh	Otol	.....	2,630	......	1,017	0	7/1	1-3	10.00
Homer G. Phillips Hospital★	St. Louis	W. H. Meinberg and T. Walsh	Op Ot	169	401	2,710	2,218	3	7/1	1	50.00
Jewish Hospital★[4]	St. Louis	M. Fineberg	Otol	.....	316	......	......	1	....	1	......
St. Louis City Hospital★[4]	St. Louis	D. Bisno	Oph	252	.....	3,611	......	2	7/1	1	95.00
		E. H. Lyman	Otol	.....	556	......	3,311	1	7/1	1	95.00
St. Mary's Group of Hospitals★	St. Louis	W. H. Luedde	Oph	230	.....	7,552	......	3	Varies	3	35.00
		B. J. McMahon	Otol	.....	743	......	4,515	2	Varies	3	35.00
University of Nebraska Hospital★[4]	Omaha	J. H. Judd	Oph	110	.....	......	......	2	7/1	1-3	75.00
Jersey City Hospital★[4]	Jersey City, N. J.	F. X. Brophy and M. G. Borrone	Op Ot	218	1,501	5,622	6,408	5	Varies	1-3	35.00
Newark City Hospital★	Newark, N. J.	.....	Otol	.....	.....	......	......	1	....	1	......
Newark Eye and Ear Infirmary	Newark, N. J.	R. H. Rogers	Oph	1,001	.....	6,161	......	2	Varies	1	......
		W. M. Brien	Otol	.....	1,795	......	4,250	2	Varies	1	......
Albany Hospital★[4]	Albany, N. Y.	H. K. Tebbutt, Jr.	Otol	.....	951	......	1,720	2	7/1	1	41.66
Brooklyn Eye and Ear Hospital	Brooklyn	W. V. Moore	Oph	2,370	.....	45,540	......	8	Varies	2	None
		G. R. O'Brien	Otol	.....	5,707	......	43,945	4	1/1, 7/1	2	None
Jewish Hospital★[4]	Brooklyn	E. L. Berger	Otol	.....	334	......	3,114	1	....	1	30.00
Kings County Hospital★	Brooklyn	W. Moehle	Oph	496	.....	8,973	......	2	1/1, 7/1	2	50.00
		H. Christensen	Otol	.....	1,471	......	5,074	2	7/1	1-2	50.00
Long Island College Hospital★[4]	Brooklyn	J. N. Evans	Oph	187	.....	4,225	......	5	7/1	4	25.00
		C. R. Weeth	Otol	.....	527	......	1,922	2	7/1	2-3	25.00
Buffalo General Hospital★	Buffalo	C. C. Cott	Otol	.....	763	......	4,292	3	7/1	1-3	25.00
Edward J. Meyer Memorial Hospital★[4]	Buffalo	I. J. Koenig	Oph	99	.....	3,201	......	4	7/1	3	100.00
		H. E. Bozer	Otol	.....	122	......	1,836	2	7/1	3	100.00
Queens General Hospital★[4]	Jamaica, N. Y.	W. G. Frey	Oph	162	.....	5,212	......	1	8/1	1	70.00
		M. S. Bender	Otol	.....	1,063	......	4,586	3	7/1	2	70.00
New Rochelle Hospital★	New Rochelle, N. Y.	A. L. Beck	Op Ot	1,579		650	663	1	7/1	1-2	100.00
Bellevue Hospital, Div. III—N. Y. Univ.★[4]	New York City	D. B. Kirby	Oph	433[b]	.....	11,558[b]	......	6	Varies	1+	45.00
		J. F. Daly	Otol	.....	2,833[b]	......	13,104[b]	6	Varies	1-2	45.00
†Beth Israel Hospital★	New York City	M. L. Som	Otol	.....	540	......	2,685	2	7/1	1-2	50.00
Bronx Eye and Ear Infirmary★	New York City	W. B. Allen	Oph	758	.....	13,627	......	1	7/1	1	50.00
		W. M. Dunning	Otol†	.....	2,037	......	13,864	1	7/1	1	50.00
Flower and Fifth Avenue Hospitals★[4]	New York City	J. A. W. Hetrick	Otol	.....	329	......	2,016	2	6/1	1	None
Goldwater Memorial Hospital★[4]	New York City	J. W. Smith	Oph	1,290	.....	1,109	......	3	7/1	1	70.00
Harlem Eye and Ear Hospital	New York City	C. B. Meding and E. Grabscheid	Op Ot	593	1,903	15,892	17,769	3*	1/1, 6/1	3	......
Harlem Hospital★[4]	New York City	H. J. Burman	Otol	.....	758	......	6,300	2	7/1	1	70.00
Institute of Ophthalmology	New York City	.....	(Unit of Presbyterian Hospital)								
Lenox Hill Hospital★[4]	New York City	J. J. Reid	Oph	316	.....	.....	......	1	Varies	1½	50.00
		G. F. Oberrender	Otol†	.....	1,109	......	......	1	Varies	1-2	50.00
Manhattan Eye, Ear and Throat Hospital[4]	New York City	.....	Oph	2,529	.....	78,216	......	10	Varies	2½	......
			Otol	.....	8,508	.....	56,594	8	Varies	2	......
Metropolitan Hospital★[4]	New York City	C. A. Turtz	Oph	82	.....	3,217	......	1	7/1	1	......
		J. A. W. Hetrick	Otol	.....	212	......	2,317	1	7/1	1	120.00
†Morrisania City Hospital★	New York City	G. Gilmore	Otol	.....	739	......	2,801	1	7/1	1	60.00
Mount Sinai Hospital★[4]	New York City	.....	Oph	.....	.....	......	......	3	7/1	1-2	50.00
			Otol	.....	.....	......	......	3	7/1	1-2	50.00
New York City Hospital★[4]	New York City	H. B. Judd	Otol	.....	411	......	3,828	3	7/1	1	120.00
New York Eye and Ear Infirmary[4]	New York City	C. Berens	Oph	6,587		......	......	13	10/1	2+	......
		S. Craig	Otol	.....	.....	66,628	39,106	13	10/1	2+	......
New York Polyclinic Medical School and Hospital★	New York City	C. E. McDannald and S. J. Kopetzky	Op Ot	188	718	......	......	3	7/1	2	25.00
New York Post-Graduate Medical School and Hospital★	New York City	R. Aebli	Oph	314	.....	7,301	......	3	Varies	2	......
		A. Nilsen	Otol	.....	800	......	6,885	4	Varies	2	......
Presbyterian Hospital★[4]	New York City	J. H. Dunnington	Oph	2,629	.....	31,294	......	9	....	3	41.66
		E. P. Fowler	Otol	.....	2,167	......	24,635	6	....	3	41.66
Roosevelt Hospital★[4]	New York City	C. N. Harper	Otol	.....	639	......	2,804	2	7/1	1-2	70.00
St. Luke's Hospital★	New York City	W. G. Frey	Oph	181	.....	8,309	......	1	1/1, 7/1	1½	50.00
		J. W. Fowlkes	Otol	.....	1,189	......	8,076	3	Varies	1-3	50.00
Rochester General Hospital★[4]	Rochester, N. Y.	E. R. Vernon and E. J. Avery	Op Ot	180	1,182	1,206	1,886	2	7/1	1-2	70.00
Strong Memorial-Rochester Municipal Hospitals★[4]	Rochester, N. Y.	J. F. Gipner	Oph	325	.....	5,042	......	2	7/1	1-2	41.66
		C. A. Heatly	Otol	.....	1,270	......	4,421	2	7/1	1-2	41.66
Sea View Hospital[4]	Staten Island, N. Y.	J. Gilbert	Otol	.....	1,638	......	......	2	1/1, 7/1	1	45.00
Syracuse University Medical Center★	Syracuse, N. Y.	G. D. Hoople	Otol	.....	500[b]	......	1,000[b]	1	7/1	1-2	75.00
Grasslands Hospital★[4]	Valhalla, N. Y.	E. C. Wood	Oph	95	.....	3,390	......	1	7/1	1-2	75.00
		M. T. Smith	Otol	.....	289	......	2,220	1	7/1	1-2	75.00
†Charlotte Memorial Hospital★[4]	Charlotte, N. C.	V. K. Hart	Otol	.....	602	......	......	1	....	1	......
Duke Hospital★[4]	Durham, N. C.	W. B. Anderson and W. W. Eagle	Op Ot	395	620	3,396	3,200	8	7/1	1	83.33
†North Carolina Baptist Hospital★[4]	Winston-Salem, N. C.	J. A. Harrill	Otol	.....	461	......	222	1	7/1	1-3	41.66
Cincinnati General Hospital★[4]	Cincinnati	D. Lyle	Oph	368	.....	7,981	......	2	7/1	1-2	......
		H. Goodyear	Otol	.....	689	......	5,277	2	7/1	1-2	......
City Hospital★[4]	Cleveland	G. L. Miller	Oph	162	.....	4,597	......	2	7/1	1	70.00
		C. W. Engler	Otol	.....	695	......	3,480	2	7/1	1	70.00
Cleveland Clinic Foundation Hospital[4]	Cleveland	P. M. Moore	Otol	.....	686	......	16,131	2	7/1	1-3	100.00
St. Luke's Hospital★	Cleveland	M. W. Jacoby	Oph	288	.....	1,970	......	1	6/25	1	90.00
		T. W. Thoburn	Otol	.....	2,485	......	1,560	2	6/25	2	90.00
University Hospitals★[4]	Cleveland	A. B. Bruner	Oph	909	.....	5,522	......	3	7/1	1+	25.00
		C. Pitkin	Otol	.....	1,727	......	3,845	2	7/1	1+	25.00

Numerical and other references will be found on page 89

14. OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated 6 Oph.	Inpatients Treated 6 Otol.	Outpatient Visits Oph.	Outpatient Visits Otol.	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Starling-Loving University Hospital★[1]	Columbus, Ohio	A. Culler	Oph	227	.....	3,155	......	3	7/1	1-3	$ 50.00
		H. G. Beatty	*Otol*	.....	*249*	.....	*1,737*	*1*	7/1	1-3	50.00
University Hospitals★	Oklahoma City	J. B. McGee and T. G. Wails	Op Ot	180	293	2,507	1,321	2	7/1	1-2	35.00
University of Oregon Medical School *Hospitals and Clinics*★[1]	*Portland, Ore*	*K. C. Swan*	*Oph*	*210*	....	*9,657*	.....	4	7/1	3	75.00
		G. L. Boyden	Otol	...	503	.....	4,274	2	7/1	1-2	75.00
George F. Geisinger Memorial Hospital★[1]	Danville, Pa	C. H. Jacobs	Oph	211	...	6,612	....	1	7/1	1-2	75.00
		F. W. Davison	Otol	.....	825	.....	7,864	2	7/1	1-2	25.00
Episcopal Hospital★[1]	Philadelphia	J. A. Bertolet and O. C. Hirst	Otol	...	963	.....	3,120	1	....	1	50.00
Graduate Hospital of the University of Pennsylvania★	Philadelphia	E. Spaeth	Oph	776	....	3,094	....	2	7/1	1-2	.....
		E. Campbell	Otol	.....	1,623	.....	2,282	3	7/1	1-2	.....
Hosp. of the University of Pennsylvania★[1]	Philadelphia	F. H. Adler	Oph	671	...	8,554	....	6	7/1	3	.....
		H. P. Schenck	Otol†	.....	1,185	.....	3,176	3	Varies	1-3	.....
Jefferson Medical College Hospital★	Philadelphia	H. J. Williams and L. H. Clerf	Otol	.....	2,134	.....	11,712	3	....	1	.....
†*Pennsylvania Hospital*★	*Philadelphia*	*E. H. Campbell*	*Otol*	...	*558*	.....	*3,235*	*1*	*6/15*	*1*	*20.00*
Philadelphia General Hospital★[1]	Philadelphia		Oph	133	...	.....	....	1	....	1-3	70.00
			Otol†	..	172	.....	....	1	....	1-3	70.00
Temple University Hospital★[1]	Philadelphia	G. Gibson	Oph	343	.	2,508	...	3	7/1	3	50.00
		M. S. Ersner	*Otol*	.	*1,531*	....	*2,330*	*1*	*7/1*	*3*	*50.00*
Wills Hospital[1]	Philadelphia	I. C. Parker	Oph	4,090	.....	101,731	....	12	Varies	2	None
Eye, Ear, Nose and Throat Hospital[1]	Pittsburgh	J. G. Linn and *J. H. McCready*	*Op Ot*	*1,372*	*4,202*	*12,159*		8	*1/1*	*2*	*41.66*
Mercy Hospital★[1]	Pittsburgh	W. L. Allison	Otol	..	729	.....	2,281	3	9/1	1-2	100.00
Knoxville General Hospital★	Knoxville, Tenn	H. E. Christenberry, Jr.	Op Ot	374		991		1	7/1	1	60.00
†John Gaston Hospital★	Memphis, Tenn	W. L. Simpson	Otol	...	729	.....	5,401	2	7/1	1	.....
Memphis Eye, Ear, Nose and Throat Hosp.	Memphis, Tenn	J. B. Stanford and S. H. Sanders	Op Ot	3,792		.....	....	4	....	1	40.00
Nashville General Hospital★[1]	Nashville, Tenn	J. C. Chambliss	Op Ot	413		3,600		1	7/1	1-2	70.00
Vanderbilt University Hospital★[1]	Nashville, Tenn		Otol	.....	.....	......	......	1	....	1	.....
Parkland Hospital★[1]	Dallas, Texas	G. Jones and J. D. Singleton	Op Ot	426		4,365		1	7/1	1	50.00
John Sealy Hospital (Univ. of Texas Medical Branch)★[1]	Galveston, Texas	J. M. Robison	Otol	..	572	...	5,547	3	....	1-3	50.00
Jefferson Davis Hospital★[1]	Houston, Texas	J. D. Walker	Oph	273	..	3,176	..	1	7/1	1-3	50.00
		H. H. Harris	Otol	.	539	..	3,216	1	7/1	1-3	50.00
University of Virginia Hospital★[1]	*Charlottesville, Va.*	E. Burton	Oph	323	.	3,195	...	2	7/1	1-4	31.00
		F. W. Woodward	Otol	.....	1,093	.....	4,771	4	7/1	1-4	62.00
Medical College of Virginia, Hosp. Div.★[1]	Richmond, Va.	R. H. Courtney and *P. N. Pastore*	*Op Ot*	*475*	*652*	*5,017*	*2,310*	6	7/1	1	.....
Gill Mem. Eye, Ear and Throat Hospital[1]	Roanoke, Va	E. G. Gill	Op Ot	282	1,127	6,502	6,663	4	1/1, 7/1	1-2	150.00
King County Hospital★	Seattle	J. A. Weber	Op Ot	613		1,658	1,511	1	7/1	1	125.00
State of Wisconsin General Hospital★[1]	Madison, Wis	F. A. Davis	Oph	621	...	4,493		3	7/1	3	25.00
		W. M. Nesbit	Otol	....	658	.....	.....	2	7/1	3	25.00
Milwaukee County Hospital★[1]	Milwaukee	T. F. McCormick and E. A. Waldeck	Op Ot	266	192	4,609	1,866	3	7/1	1-3	82.26

15. ORTHOPEDIC SURGERY

The following services are approved by the Council and the American Board of Orthopedic Surgery

(See footnote ½ to 3 for number of years credit, also 14)

Hospitals, 239; Assistant Residencies and Residencies, 718

Name of Hospital	Location	Chief of Service	Type of Training[14]	Inpatients Treated[5]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Army											
Letterman General Hospital★[2]	San Francisco	O. B. Bolibaugh	AFS	920	2,736	3	3	5	1/1	1-2	n
Fitzsimons General Hospital★[2]	Denver	J. H. Forsee	AFS	986	2,665	3	3	6	1/1	1-2	n
Walter Reed General Hospital★[2]	Washington, D. C.	F. E. Hamilton	AFS	1,368	5,680	4	2	6	1/1	1-2	n
Oliver General Hospital★[2]	Augusta, Ga.	E. Dehne	AFS	1,916	1,243	3	1	8	1/1	1-3	n
Brooke General Hospital★[2]	San Antonio, Texas	M. S. Thompson	AFS	2,698	3,668	2	2	8	1/1	1-2	n
United States Navy											
U. S. Naval Hospital★[1½]	Long Beach, Calif.	R. R. Myers	AF	1,779	2,644	1	1	2	Varies	1½	n
U. S. Naval Hospital★[2]	Oakland, Calif.	....	AFS	2,067	......	21	15	2	....	1-2	n
U. S. Naval Hospital★[1½]	San Diego, Calif.	H. A. Gross	AF	2,165	10,275	3	3	2	Varies	1½	n
U. S. Naval Hospital★[2]	Bethesda, Md.	F. P. Kreuz, Jr.	AFS	939	650	6	5	3	Varies	1-3	n
U. S. Naval Hospital★[2]	Chelsea, Mass.	....	AFS	468	1,490	..	..	1	....	1-2	n
†*U. S. Naval Hospital*★[2]	*St. Albans, N. Y.*	*E. H. Osterloh*	AFS	1,140	..	..	..	3	10/1	1-3	n
U. S. Naval Hospital★[2]	Philadelphia	C. F. Morrison	AFS	1,592	10,245	15	3	4	Varies	1-2	n
United States Public Health Service											
U. S. Marine Hospital★[1]	Baltimore	J. D. Lane, Jr.	A	175b	1,476b	..	..	1	7/1	1	n
U. S. Marine Hospital★[1½]	Stapleton, L. I., N. Y.	A. A. Michele	AF	1,669	6,013	4	1	6	7/1	1-3	n
Veterans Administration											
Veterans Admin. Hospital[2]	Los Angeles	R. Mazet, Jr.	AFS	578	12,236	..	..	1	7/1	2	$275.00
Veterans Admin. Hospital[1½]	San Francisco	J. J. Loutzenheiser and F. J. Cox	AF	249	660	1	1	3	7/1	1-3	275.00
Veterans Admin. Hospital[2]	Van Nuys, Calif.	J. A. Weinberg	AFS	585	2,530	7	2	3	1/1, 7/1	2-3	275.00
†Veterans Admin. Hospital[1½]	Fort Logan, Colo.	....	AF	346	......	..	..	2	Varies	1-3	275.00
Veterans Admin. Hospital[1½]	Chamblee, Ga.	R. T. Shields	AF	720	......	6	3	4	7/1	1-3	275.00
Veterans Admin. Hospital[2]	Hines, Ill.	H. A. Sofield	AFS	1,154	.....	12	5	8	Varies	1-3	275.00
Veterans Admin. Hospital[1½]	Indianapolis	H. L. Egbert	AF	320	160	3	2	1	1/1, 7/1	1-5	275.00
Veterans Admin. Hospital[1½]	Wadsworth, Kan.	....	AF	663	......	..	..	3	Varies	1-3	

Numerical and other references will be found on page 89

15. ORTHOPEDIC SURGERY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Veterans Admin. Hospital[2]	Louisville, Ky.	A. K. Fischer	AFS	1,315	300	5	2	3	7/1	1	$275.00
Veterans Admin. Hospital[2]	New Orleans	R. H. Alldredge	AFS	410	822	4	2	4	7/1	2-3	275.00
Veterans Admin. Hospital[2]	Fort Howard, Md.	J. Lyford	AFS	440	......	..	..	3	Varies	1-3	275.00
Veterans Admin. Hospital [illegible]	Boston	J. Barr	AS	550	1,267	2	1	1	6/1	1-2	275.00
V [illegible]	Framingham, Mass.	H. H. Faxon	AFS	631	......	5	4	1	7/1	1-2	275.00
V [illegible]	Minneapolis	E. T. Evans	AFS	996	....	3	3	9	....	2	275.00
V [illegible]	Jefferson Barracks, Mo.		AFS	...	......	..	..	1	....	1-2	275.00
V [illegible]	Lincoln, Nebr	J. L. M. Thomson	AF	330	275	1	1	3	Varies	1-3	275.00
V [illegible]	Albuquerque, N. Mex.		AF	249b	....	..	..	1	Varies	1-2	275.00
V [illegible]	New York City		AFS	815	4,118	6	2	9	1/1, 7/1	2-3	275.00
Veterans Admin. Hospital	Staten Island, N. Y.	D. M. Bosworth	A	522	910	..	..	2	7/1	1-2	275.00
Veterans Admin. Hospital[2]	Cleveland	P. J. Partington	AFS	377	.....	2	1	3	7/1	2	275.00
Veterans Admin. Hospital[2]	Oklahoma City	W. K. West	AFS	....	2,350	..	..	2	7/1	1-2	275.00
Veterans Admin. Hospital[2]	Portland, Ore.	H. Blair	AFS	740	....	2	2	2	7/1	1-3	275.00
†Veterans Admin. Hospital[2]	Aspinwall, Pa	D. I. Schwartz	AFS	600	....	..	..	2	7/1	1-3	275.00
Veterans Admin. Hospital[2]	Columbia, S. C	H. M. Bowman	AFS	233	..	1	..	5	1/1	1-3	275.00
Veterans Admin. Hospital[2]	Memphis, Tenn.	D. M. Street	AFS	826	881	3	3	7	7/1	1-3	275.00
Veterans Admin. Hospital[1½]	Dallas, Texas		AF	825b	....	..	..	3	7/1	1-2	275.00
Veterans Admin. Hospital[2]	McKinney, Texas	M. Freiberg	AFS	919	.....	2	2	3	....	1-3	275.00
Veterans Admin. Hospital[1½]	Richmond, Va	R. C. Farrow	AFS	388	262	2	2	3	Varies	1-1½	275.00
Veterans Admin. Hospital[1½]	Milwaukee, Wis.	P. L. Carnesale	AF	871	2,035	8	4	4	7/1	1-3	275.00
Nonfederal											
Jefferson-Hillman Hospitals★[3,4]	Birmingham, Ala.	G. D. Sherrill	ACFS	1,835	3,619	29	12	3	7/1	1-2	50.00
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company★[1½]	Fairfield, Ala.	C. H. Wilson	F	653	7,811	7	..	2	7/1	1-3	200.00
City Hospital★[2½]	Mobile, Ala.	W. C. Hannon	ACF	898	952	28	5	3	1/1	1-2	90.00
Arkansas Children's Home and Hospital[1,4]	Little Rock, Ark.	W. V. Newman	C	310	.	1	..	1	....	1	.....
Children's Hospital★[1]	Los Angeles	J. C. Wilson	C	561	2,887	3	3	1	7/1	1-3	208.00
Los Angeles County Hospital★[2,4]	Los Angeles	V. Thompson	AFS	4,721	31,351	183	18	10	Varies	3	165.00
C [illegible]	Los Angeles	A. Brockway	ACFS	2,192	36,770	3	1	4	....	2-3	150.00
[illegible] y Hospital★[3,4]	Oakland, Calif.	L. Barnard	ACFS	529	.....	27	5	4	....	1-3	130.00
[illegible]	Oakland, Calif.	W. I. Holcomb	AFS	1,106	......	10	2	2	7/1	1-2	110.00
San Diego County General Hospital★[1½]	San Diego, Calif.	F. Macpherson	AF	450	1,726	51	4	1	7/1	1	187.00
Children's Hospital★[1,4]	San Francisco	L. C. Abbott	C	403	......	..	..	2	7/1	1	50.00
Franklin Hospital★[1,4]	San Francisco	F. C. Bost and L. C. Abbott	A	1,005	......	14	13	4	7/1	1	100.00
St. Mary's Hospital★[1½]	San Francisco	V. Dillon	F	999b	......	..	..	2	4/1	1	100.00
San Francisco Hospital★[2,4,31]	San Francisco	F. C. Bost	AF	357	.....	9	..	2	....	1	175.00
Shriners Hospital for Crippled Children[1]	San Francisco	F. C. Bost	C	230	2,698	..	..	2	4/1	1+	100.00
Stanford University Hospitals★[1½]	San Francisco	D. E. King	AS	712	4,333	5	..	2	7/1	1-2	50.00
University of California Hospital★[1,4]	San Francisco	L. C. Abbott	A	220	6,640	..	..	2	Varies	1	100.00
Santa Clara County Hospital★[1½]	San Jose, Calif.	J. Josephson	AF	....	......	..	..	1	....	1	180.00
Children's Hospital[1,4]	Denver	H. I. Barnard	C	471	3,030	..	..	2	1/1, 7/1	1	50.00
University of Colorado Medical Center											
Colorado General Hospital★[2,4]	Denver	H. I. Barnard	AFS	231	1,866	11	4	1	7/1	1-2	85.00
Denver General Hospital★[1½,24]	Denver	H. L. Barnard	AF	1,780	1,914	84	58	1	1/1	1-2	50.00
†St. Luke's Hospital★[1]	Denver	R. G. Packard	A	291	722	3	1	1	7/1	1	50.00
†Corwin Hospital★[1½]	Pueblo, Colo.	W. D. Boyer	F	867	16,558	16	6	1	7/1	1	75.00
Hartford Hospital★[2,4]	Hartford, Conn.		AFS	1,420	......	20	8	1	1/1, 7/1	1-3	50.00
[illegible] nity Hospital [illegible] rsity Service)★[2,4]	New Haven, Conn.	M. Eveneth	AFS	325	.....	6	2	2	7/1	3	40.00
[illegible] ★	New Haven, Conn.	D. O'Connor	A	489	361	14	2	2	7/1	1	75.00
[illegible] pled Children[1,4]	Newington, Conn.	M. M. Pike	C	306	1,986	..	..	2	1/1, 7/1	1	100.00
[illegible] e of the [illegible]	Wilmington, Del.	A. R. Shands, Jr.	C	156	1,814	..	..	2	7/1	1	100.00
Central Dispensary and Emergency Hosp.★[1½]	Washington, D. C.	F. M. Hand	F	1,105	1,459	10	1	1	7/1	1	100.00
Freedman's Hospital★[3,4]	Washington, D. C.	J. Neviaser	ACFS	295	3,491	12	1	1	7/1	1-3	116.66
Gallinger Municipal Hospital★[3,4]	Washington, D. C.	M. C. Cobey	ACFS	474	4,680	21	7	4	7/1	1-2	75.00
Hope Haven Hospital[1]	Jacksonville, Fla.	F. L. Fort	C	311	802	..	..	1	7/1	1	100.00
James M. Jackson Memorial Hospital★[2½]	Miami, Fla.	A. H. Weiland	ACF	1,519	2,315	45	20	2	7/1	1	95.50
Grady Memorial Hospital★[2]	Atlanta, Ga.	T. P. Goodwyn	AFS	857	7,826	28	11	1	7/1	1	20.00
University Hospital★[2]	Augusta, Ga.	P. B. Wright	ACFS	535	556	19	2	2	7/1	1-2	40.00
Scottish Rite Hosp. for Crippled Children	Decatur, Ga.	J. H. Kite	C	280b	.....	..	..	1	1/1	1	150.00
Children's Memorial Hospital[1,4]	Chicago	E. L. Compere	C	......	1,557	1	1	1	1/1, 7/1	1+	75.00
Cook County Hospital★[1½,4]	Chicago	F. G. Murphy	AF	450	7,286	19	..	3	1/1, 7/1	1-3	27.50
Michael Reese Hospital★[2,4]	Chicago	P. Lewin	AC	511	2,577	5	2	2	7/1	2	25.00
[illegible]	Chicago		A	......	......	..	..	1	....	1	......
[illegible] itals★[3]	Chicago	F. A. Chandler	ACFS	599	7,667	4	3	6	7/1	1-3	55.00
[illegible]	Chicago	C. Scuderi	F	297	.....	2	..	1	1/1, 7/1	½	......
[illegible]	Chicago	F. A. Chandler	A	813	1,058	11	4	2	7/1	1	......
[illegible] Children[1]	Chicago	H. A. Sofield	C	274	2,105	..	..	3	7/1	1	60.00
[illegible] ★[3,4]	Chicago	C. H. Hatcher	ACFS	677	5,412	5	4	4	7/1	1-3	25.00
[illegible]	Chicago	E. L. Compere	AFS	1,352	......	9	3	4	1/1, 7/1	1+	25.00
[illegible]	Evanston, Ill.	V. C. Turner	AF	563	1,249	5	1	1	....	3	50.00
[illegible]	Evanston, Ill.	J. S. Fahey	AF	799	......	25	1	1	7/1	1	75.00
West Suburban Hospital★[1½]	Oak Park, Ill.	H. A. Sofield	AF	325	......	2	..	1	1/1, 7/1	6 mos.	100.00
†St. Francis Hospital★[2½]	Peoria, Ill.	H. E. Cooper	ACF	675	4,024	2	..	1	7/1	1-2½	150.00
Indianapolis General Hospital★[1½]	Indianapolis	E. B. Mumford	AF	806	6,614	51	16	4	7/1	1-2	70.00
Indiana University Medical Center★[3,4]	Indianapolis	G. J. Garceau	ACFS	1,128	7,838	14	5	6	....	1-3	33.33
Methodist Hospital★[1½,4]	Indianapolis	L. L. Shuler	AF	1,316	......	29	10	2	7/1	1-2	200.00
St. Vincent's Hospital★[2]	Indianapolis	G. J. Garceau	AFS	1,097	......	27	2	2	1/1	3	200.00
[illegible]	Des Moines, Iowa	E. M. George	AF	219	......	11	5	1	7/1	1-2	75.00
[illegible]	Iowa City	A. Steindler	A	555	928	1	..	1	....	1	......
[illegible]	Iowa City	A. Steindler	ACS	2,710	4,522	6	5	7	7/1	1	50.00
[illegible]	Kansas City, Kan.	F. D. Dickson	ACFS	625	2,097	15	5	1	....	1	......
[illegible]	Louisville, Ky.	R. T. Hudson	C	730	......	1	1	3	1/1	1	100.00
[illegible]	Louisville, Ky.	F. K. Armand	AFS	534	5,552	19	3	2	7/1	1	45.00
Charity Hospital of Louisiana★[3,4]	New Orleans		ACFS	2,875	29,784	70	7	14	7/1	1-3	25.00
Louisiana State University Unit★[3]	New Orleans	H. T. Simon	ACFS	(See Charity Hospital)							
Tulane University Unit★[3]	New Orleans	G. A. Caldwell	ACFS	(See Charity Hospital)							
Foundation Hospital[2]	New Orleans	G. A. Caldwell	AFS	202	8,861	2	1	4	1/1, 7/1	2	150.00
Touro Infirmary★[2]	New Orleans	G. A. Caldwell	AC	447	770	1	..	1	....	1-2	17.50
Shreveport Charity Hospital★[3]	Shreveport, La.	T. M. Oxford	ACFS	1,453	6,109	26	8	2	7/1	1-3	60.00
Shriners Hospital for Crippled Children[1]	Shreveport, La.	G. D. Caldwell	C	102	801	..	..	1	7/1	1-2	100.00
Children's Hospital School[1]	Baltimore	G. E. Bennett	C	580	150	3	..	2	7/1	4-6	None
James Lawrence Kernan Hospital for Crippled Children[1]	Baltimore	A. F. Voshell	C	299	4,244	1	..	2	7/1	1	100.00
Johns Hopkins Hospital★[2,4]	Baltimore	R. Johnson	AFS	575	10,886	7	3	5	....	1+	......
Boston City Hospital★[1½,4]	Boston	J. H. Shortell	AF	1,022	38,476	18	4	2	....	1+	66.67

Numerical and other references will be found on page 89

15. ORTHOPEDIC SURGERY—Continued

Name of Hospital	Location	Chief of Service	Type of Training[14]	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[8]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Children's Hospital★[1½, 4, 20]	Boston	W. Green	CS	625	21,176	1	1	8	Varies	.....	$ 41.67
Lahey Clinic[1]	Boston	G. E. Haggart	A	......	......	..	..	4	Varies	1-2	125.00
Massachusetts General Hospital★[3, 20]	Boston	G. W. Van Gorder	ACFS	366b	......	..	..	2	7/1	1-3	41.67
Peter Bent Brigham Hospital★[1½]	Boston	W. T. Green	AF	458b	2,600b	..	..	1	1/1, 7/1	1+	83.33
Shriners Hospital for Crippled Children[1]	Springfield, Mass.	G. Hough	C	271	2,953	1	..	2	1/1	1-2	25.00
Worcester City Hospital★[4]	Worcester, Mass.	J. W. O'Meara	ACFS	798	1,724	29	8	2	1/1, 7/1	1-3	50.00
University Hospital★[3, 4]	Ann Arbor, Mich.	C. E. Badgley	ACFS	1,370	10,953	10	6	6	7/1	1	111.40
Children's Hospital[1, 20]	Detroit	F. J. Fischer	C	256	2,328	..	..	2	....	1	50.00
City of Detroit Receiving Hospital★[½, 1, 20]	Detroit	A. D. LaFerte	F	925	9,338	..	..	2	7/1	1	167.00
Harper Hospital★[1, 4, 20]	Detroit	A. D. LaFerte	A	896	......	..	..	3	7/1	1	118.00
Henry Ford Hospital★[3, 4]	Detroit	C. L. Mitchell	ACFS	1,182	14,879	10	2	3	7/1	1-3	200.00
Blodgett [illegible]	Grand Rapids, Mich.	J. T. Hodgen	ACF	137	......	..	..	1	7/1	1-3	175.00
Borgess [illegible]	Kalamazoo, Mich.	H. Stryker	AF	....	......	..	..	1	....	1	....
Shriners [illegible] ildren[1]	Minneapolis	W. H. Cole	C	153	385	..	..	1	7/1	1	....
University Hospitals★	Minneapolis	W. H. Cole	A	162	1,595	3	1	12	7/1	1-3	115.00
Mayo Foundation[2]	Rochester, Minn.	R. K. Ghormley	AFS	(See page 89)		..	..	16	....	1	....
Gillette State Hospital for Crippled Children[1, 4]	St. Paul	C. C. Chatterton	C	753	6,547	5	4	4	1/1, 7/1	1	91.50
Mississippi Baptist Hospital[1]	Jackson, Miss.	T. H. Blake	C	461	......	..	..	1	....	1	....
University Hospitals[1]	Columbia, Mo.	W. J. Stewart	C	173	997	2	1	1	....	1	....
Children's Mercy Hospital[1]	Kansas City, Mo.	N. Pickard	C	261	2,269	..	..	2	7/1	1	50.00
Kansas City General Hospital No. 1★[1½]	Kansas City, Mo.	R. Diveley	AF	887	4,539	46	19	2	7/1	1	75.00
St. Luke's Hospital★[2½]	Kansas City, Mo.	F. Dickson	ACF	568b	......	..	..	1	....	1-3	75.00
Barnes Hospital★[3]	St. Louis	J. A. Key	ACFS	662	2,963	9	4	1	7/1	1-5	25.00
St. Louis City Hospital★[½, 4]	St. Louis	E. Holscher	F	1,173	770	107	7	2	7/1	1	95.00
St. Mary's Group of Hospitals★[3]	St. Louis	A. O'Reilly	ACFS	470	4,061	9	3	6	Varies	3	35.00
Shriners Hospital for Crippled Children[1]	St. Louis	L. T. Ford	C	405	......	..	..	1	....	1	....
Nebraska Orthopedic Hospital[1, 4]	Lincoln, Neb.	H. W. Orr	C	769	1,910	17	10	1	7/1	1-2	150.00
University of Nebraska Hospital★[3, 4]	Omaha	R. D. Schrock	ACFS	118	......	1	1	2	7/1	1-3	75.00
Jersey City Hospital★[1½, 4]	Jersey City, N. J.	S. B. Sprague	AF	797	8,411	41	4	3	Varies	1-3	35.00
Monmouth Memorial Hospital★[1½]	Long Branch, N. J.	N. S. Ransohoff	AF	817	1,399	15	10	2	1/1	1	150.00
Hospital and Home for Crippled Children[2]	Newark, N. J.	A. Stahl and H. H. Kessler	AC	418	......	2	..	2	....	1+	....
New Jersey Orthopaedic Hosp. and Disp.[2]	Orange, N. J.	H. W. Smith	AC	772	15,302	4	2	2	1/1	2	90.00
Orthopaedic Hospital and Dispensary[1]	Trenton, N. J.	R. B. Ernest	A	301	1,895	4	..	1	7/1	1	150.00
Carrie Tingley Hospital for Crippled Children[1]	Hot Springs, N. Mex.	W. L. Minear	C	412	......	1	1	2	1/1, 7/1	1-2	50.00
Albany Hospital★[1, 4]	Albany, N. Y.	J. W. Ghormley	A	233	299	6	1	2	7/1	1	41.66
Binghamton City Hospital★[2]	Binghamton, N. Y.	C. M. Allaben	AC	346	......	1	1	2	7/1	1-2	100.00
House of St. Giles the Cripple[1, 4]	Brooklyn	J. B. L'Episcopo	C	195	9,320	..	..	1	1/1	1	100.00
Kings County Hospital★[3]	Brooklyn	C. C. Vitale	ACFS	504	7,380	4	3	3	7/1	3	50.00
Long Island College Hospital★[2, 4]	Brooklyn	H. C. Fett	AFS	339	7,496	1	1	3	7/1	1-3	50.00
Methodist Hospital★[1½]	Brooklyn	H. P. Lange	AF	405	1,869	9	1	1	7/1	1-3	25.00
St. Charles Hospital Orthopedic Clinic[1]	Brooklyn	H. C. Fett	C	252	3,900	..	..	3	7/1	1	100.00
Buffalo General Hospital★[2]	Buffalo	F. N. Potts	AFS	799	576	16	3	5	7/1	1-3	25.00
Children's Hospital[1]	Buffalo	F. N. Potts	C	324	......	2	..	2	1/1, 7/1	1	50.00
Edward J. Meyer Memorial Hospital★[2, 4]	Buffalo	A. A. Gartner	AFS	131	1,300	1	..	4	7/1	3	100.00
Millard Fillmore Hospital★[1]	Buffalo	A. A. Gartner	A	687	......	8	2	2	....	1-4	50.00
Meadowbrook Hospital★[½]	Hempstead, N. Y.	O. C. Hudson	F	598	......	48	18	1	7/1	1	115.00
Queens General Hospital★[2]	Jamaica, N. Y.	F. C. Courten	AFS	235	8,102	9	1	3	7/1	2	70.00
Nassau Hospital★[1½, 4]	Mineola, N. Y.	O. C. Hudson	AF	815	2,495	20	3	1	7/1	1	100.00
Bellvue Hospital, Div. IV—Open Div.★[2, 4]	New York City	A. Krida	AC	750b	5,933b	..	..	4	1/1, 7/1	1-3	45.00
Flower and Fifth Avenue Hospitals★[1½, 4]	New York City	A. Bingham	AF	322	1,084	2	..	1	7/1	1	....
Hospital for Joint Diseases★[2½, 4]	New York City	S. Kleinberg and L. Mayer	ACS	2,694	35,813	20	8	20	1/1	1-3	40.00
Hospital for Special Surgery[3]	New York City	P. D. Wilson	ACFS	1,450	23,353	5	2	10	Varies	2	50.00
Lenox Hill Hospital★[1½, 4]	New York City	W. Galland	AF	392	......	4	..	2	Varies	1-2	50.00
Metropolitan Hospital★[2, 4]	New York City	M. J. Wilson	AFS	634	2,019	41	1	4	7/1	1-2	120.00
Mount Sinai Hospital★[2, 4]	New York City	R. K. Lippmann	AFS	655b	7,506b	..	..	3	1/1, 7/1	1-2	50.00
New York Orthopaedic Disp. and Hospital	New York City	....	.....	(Unit of Presbyterian Hospital)							
Presbyterian Hospital★[3, 4]	New York City	A. Smith	ACFS	1,751	64,350	10	..	22	....	1-3	41.66
St. Luke's Hospital★[3, 18]	New York City	M. Cleveland	ACFS	598	4,511	11	6	3	Varies	1-3	50.00
¶St. Charles Hospital for Crippled Children[1]	Port Jefferson, N. Y.	F. S. Child	C	202	......	4	..	1	7/1	1-2	150.00
Rochester General Hospital★[1, 4]	Rochester, N. Y.	H. B. Crawford	A	743	1,806	10	10	1	7/1	1	70.00
Strong Memorial-Rochester Municipal Hospitals★[3, 4, 16]	Rochester, N. Y.	R. P. Schwartz	ACFS	601	5,373	..	..	3	7/1	1-2	41.66
New York State Reconstruction Hospital[2]	W. Haverstraw, N. Y.	J. C. McCauley, Jr.	AC	468	767	6	..	4	7/1	1	152.00
Charlotte Memorial Hospital★[1, 4]	Charlotte, N. C.	H. Winkler	A	1,140	983	12	6	3	....	1-3	....
Duke Hospital★[3, 4, 13]	Durham, N. C.	L. D. Baker	ACFS	703	4,407	..	..	16	7/1	1	83.33
North Car [illegible]	Gastonia, N. C.	W. M. Roberts	C	588	4,875	10	..	2	....	1	40.00
North Car [illegible]	Winston-Salem, N. C.	R. A. Moore	AFS	342	3,995	6	1	1	....	1-3	....
Children's [illegible]	Akron, Ohio	W. A. Hoyt	C	319	1,257	6	2	2	7/1	1-2	95.00
City Hospital★[1½]	Akron, Ohio	H. R. Conn	AF	467	......	1	..	5	7/1	1-3	100.00
Children's Hospital[1]	Cincinnati	J. A. Freiberg	C	323b	1,152b	..	..	m	7/1	1	None
Cincinnati General Hospital★[2]	Cincinnati	H. Freiberg	AFS	250	8,012	120	82	16	7/1	1-2	....
Jewish Hospital★[1]	Cincinnati	J. A. Freiberg	A	544	......	7	5	1	7/1	6 mos.	75.00
Cleveland Clinic Foundation Hospital[3]	Cleveland	J. A. Dickson	ACFS	519	12,636	1	..	6	7/1	1+	100.00
Mount Sinai Hospital★[1½]	Cleveland	R. S. Reich	AF	933	1,467	7	4	2	7/1	1	100.00
St. Luke's Hospital★[2]	Cleveland	T. A. Wills	AFS	999	2,022	33	5	3	6/25	3	60.00
University Hospitals★[3, 4]	Cleveland	M. Harbin	ACFS	632	3,077	6	..	2	7/1	1	25.00
Children's Hospital[1]	Columbus, Ohio	E. H. Wilson	C	437b	2,066b	..	..	2	1/1, 7/1	1	60.00
[illegible]	Columbus, Ohio	E. H. Wilson	AF	1,143	1,820	22	5	1	1/1	1	110.00
[illegible]	Columbus, Ohio	J. D. Wilson	AF	668	......	13	4	1	7/1	1-2	100.00
[illegible]	Toledo, Ohio	B. G. Hein and A. L. Bershon	ACFS	883	129	8	1	2	7/1	1-3	100.00
[illegible]	Youngstown, Ohio	R. K. Morrall	AFS	1,003	1,259	20	8	1	7/1	1+	100.00
[illegible]	Oklahoma City	E. D. McBride	A	14	25,550	5	2	4	1/1	1-2	150.00
[illegible]	Oklahoma City	W. K. West	ACFS	1,050	6,724	23	5	5	7/1	1-2	35.00
[illegible]	Portland, Ore.	R. E. Begg	AF	699	......	2	1	2	7/1	1-3	75.00
[illegible]	Portland, Ore.	L. S. Lucas	C	332	......	..	..	1	....	1	....
University of Oregon Medical School Hospitals and Clinics★[2, 4]	Portland, Ore.	L. S. Lucas	AFS	423	4,733	27	10	6	7/1	3	75.00
State Hospital for Crippled Children[1]	Elizabethtown, Pa.	T. Outland	C	193	1,707	3	1	2	4/1	1	175.00
Hamot Hospital★[1½, 4]	Erie, Pa.	A. G. Davis	AF	1,140	594	6	2	2	....	1	....
Graduate Hospital of the Univ. of Pa.★[1½]	Philadelphia	J. Nicholson	AS	150	1,299	2	1	1	7/1	1-2	....
Hahnemann Hospi [illegible]	Philadelphia	E. O. Geckeler	AFS	606	......	10	..	2	....	1-3	50.00
Hosp. of the Univ. [illegible]	Philadelphia	P. C. Colonna	ACFS	570	4,955	2	1	6	7/1	1-3	20.00
Jefferson Medical [illegible]	Philadelphia	J. R. Martin	AFS	516	3,883	5	1	2	....	1-2	....
Philadelphia Gene [illegible]	Philadelphia	J. R. Moore	ACFS	629	......	95	..	3	....	1-3	70.00
Shriners Hospital for Crippled Children[1, 4]	Philadelphia	J. R. Moore	C	184	2,624	..	..	3	1/1	1-2	50.00

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*Numerical and other references will be found on page 89

15. ORTHOPEDIC SURGERY—Continued

Name of Hospital	Location	Chief of Service	Type of Training[14]	Inpatients Treated[5]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Temple University Hospital★[2, 4]	Philadelphia	J. R. Moore	AFS	675	3,012	14	4	2	7/1	3	$50.00
Allegheny General Hospital★[2]	Pittsburgh	J. A. Helbeling and P. B. Steele	ACFS	1,030	1,592	11	3	2	9/1	3	100.00
Children's Hospital[1, 4]	Pittsburgh	W. O. Markell	C	295	2,331	..	..	1	1/1	1-3	75.00
Presbyterian Hospital★[2, 4]	Pittsburgh	J. S. Donaldson	AFS	339	......	2	1	1	....	1-5	41.67
St. Francis Hospital★[1]	Pittsburgh	C. C. Yount	A	216	3,170	..	..	1	7/1	1	110.00
Robert Packer Hospital★[2]	Sayre, Pa.	G. Hammond	AFS	802	4,095	12	6	2	7/1	1-3	150.00
Rhode Island Hospital★[2]	Providence, R. I.	H. McCusker	ACFS	559	......	2	1	1	7/1	1	50.00
Roper Hospital★[2]	Charleston, S. C.	F. A. Hoshall	ACFS	659	3,097	15	4	2	7/1	1-4	25.00
Shriners Hospital for Crippled Children[1, 4]	Greenville, S. C.	J. W. White	C	289	1,679	..	..	3	7/1	1	100.00
Baroness Erlanger Hospital★[1, 2]	Chattanooga, Tenn.	R. C. Robertson	AF	890	1,059	19	5	1	7/1	1	150.00
Willis C. Campbell Clinic Hospital[1]	Memphis, Tenn.	J. S. Speed	ACFS	1,650	12,366	19	..	11	1/1, 7/1	3	50.00
Baylor University Hospital★[1, 4]	Dallas, Texas	F. L. Butte	A	1,257	496	12	2	2	7/1	1-3	50.00
Parkland Hospital★[1, 2, 4]	Dallas, Texas	P. M. Girard	F	516	2,740	10	1	2	7/1	3	50.00
Texas Scottish Rite Hospital for Crippled Children[1]	Dallas, Texas	B. Carrell	C	736	4,077	1	..	3	7/1	1	75.00
Harris Memorial Methodist Hospital★[1, 2, 4]	Fort Worth, Texas	C. F. Clayton	AF	751	2,750	4	1	1	7/1	1-2	100.00
John Sealy Hospital (Univ. of Texas Medical Branch)★[2, 4]	Galveston, Texas	G. W. N. Eggers	AFS	485	3,573	5	1	3	....	1-3	50.00
Hermann Hospital★[1, 2, 4]	Houston, Texas	E. T. Smith	AF	406	758	7	3	2	....	.....	50.00
Jefferson Davis Hospital★[1, 2]	Houston, Texas	E. M. Cowart	F	652	2,436	10	2	1	7/1	1-3	50.00
Methodist Hospital★[1, 4]	Houston, Texas	J. B. Foster	C	278	974	1	1	1	Varies	1	90.00
St. Joseph's Infirmary[1, 2, 4]	Houston, Texas	J. B. Foster	AF	1,468	600	..	..	1	....	1	150.00
Scott and White Hospital★[1, 2]	Temple, Texas	H. B. Macey	AF	334	......	2	1	1	....	1+	150.00
University of Virginia Hospital★[2, 4]	Charlottesville, Va.	R. V. Funsten	ACFS	570	3,881	7	..	4	7/1	1-4	62.00
Crippled Children's Hospital[1, 4]	Richmond, Va.	W. T. Graham	C	..	......	1	..	2	1/1	1-2	100.00
Medical College of Virginia, Hosp. Div.★[2]	Richmond, Va.	H. P. Mauck	AFS	891	3,123	16	7	5	7/1	1	....
Children's Orthopedic Hospital[1, 4, 22]	Seattle	J. F. LeCocq	C	452	4,684	..	..	2	4/1, 7/1	1	125.00
King County Hospital★[1, 2, 22]	Seattle	R. Anderson	AF	820	3,153	36	14	1	7/1	1	125.00
Providence Hospital★[1, 22]	Seattle	I. O. McLemore	A	548	......	1	1	1	7/1	1	100.00
Swedish Hospital★[1, 2, 22]	Seattle	J. LeCocq	AF	690	......	2	2	1	....	1	....
Charleston General Hospital★[1, 2]	Charleston, W. Va.	G. Miyakawa	AF	995	6,643	11	4	2	1/1	1+	125.00
St. Mary's Hospital★[1, 2]	Huntington, W. Va.	F. Scott	AF	1,515	661	..	..	1	7/1	1+	100.00
Morris Memorial Hospital[1, 4]	Milton, W. Va.	C. B. Smith	C	398	......	..	..	2	....	1	100.00
State of Wisconsin General Hospital★[2, 4]	Madison, Wis.	R. E. Burns	ACFS	1,479	6,152	30	28	5	7/1	3	25.00
†Columbia Hospital★[2]	Milwaukee, Wis.	H. C. Schumm	AFS	580	......	8	3	3	1/1	1-3	50.00
Milwaukee Children's Hospital[1, 4]	Milwaukee	F. R. Jauney	C	5,051	25,968	79	60	7	7/1	2	75.00
Shriners Hospital for Crippled Children[1]	Honolulu, Hawaii	R. N. Hatt	C	128	2,367	..	..	1	7/1	1	......

16. OTOLARYNGOLOGY

(See Ophthalmology)

17. PATHOLOGY

The following services are approved by the Council and the American Board of Pathology

(See footnotes 1, 2 and 3 for number of years credit)

Hospitals, 328; Assistant Residencies and Residencies, 794

Name of Hospital	Location	Chief of Service	Inpatients Treated[5]	Surgical Specimens	Number Examined Microscopically	Autopsy Percentage	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Army										
Letterman General Hospital★[3]	San Francisco	K. F. Ernst	15,298	3,472	3,472	96	5	1/1	1-3	*n*
Fitzsimons General Hospital★[3]	Denver	H. W. Mahon	14,796	4,213	4,213	83	3	1/1	1-3	*n*
Army Institute of Pathology[1]	Washington, D. C.	....	......	......	.....	..	1	....	1	*n*
Walter Reed General Hospital★[3]	Washington, D. C.	V. H. Cornell	12,453	5,096	4,942	83	3	1/1	1-3	*n*
Oliver General Hospital★[1]	Augusta, Ga.	J. M. Blumberg	8,403	3,649	3,649	81	2	1/1	1-3	*n*
Percy Jones General Hospital★[3]	Battle Creek, Mich.	R. M. Thompson	9,335	1,289	1,240	100	4	1/1, 7/1	1-2	*n*
Brooke General Hospital★[3]	San Antonio, Texas	E. DeCoursey	20,840	3,128	3,128	69	5	1/1	1-3	*n*
Gorgas Hospital★[3]	Ancon, C.Z.	L. B. Bates	14,263	2,621	2,621	65	3	1/1	1-3	*n*
United States Navy										
U. S. Naval Hospital★[3]	Long Beach, Calif.	A. F. Braff	16,732	3,389	3,389	90	2	Varies	3	*n*
U. S. Naval Hospital★[3]	Oakland, Calif.	J. S. Shaver	17,320	2,027	1,805	48	2	Varies	3	*n*
U. S. Naval Hospital★[3]	San Diego, Calif.	A. W. Eaton	22,238	2,643	2,643	75	3	Varies	1-3	*n*
U. S. Naval Hospital★[3]	Bethesda, Md.	W. M. Silliphant	14,298	3,377	3,377	81	2	Varies	1-3	*n*
U. S. Naval Hospital★[1]	Brooklyn	B. H. Smith	6,033	1,265	1,195	53	2	Varies	1	*n*
U. S. Naval Hospital★[3]	St. Albans, N. Y.	D. J. Cracovaner	10,837	1,945	1,926	67	2	10/1	1-3	*n*
U. S. Naval Hospital★[3]	Philadelphia	T. W. Bennett	21,897	2,176	2,176	54	2	Varies	1-3	*n*
United States Public Health Service										
U. S. Marine Hospital★[1]	New Orleans	G. Adams	6,697	1,466	1,035	77	1	1/1	1-3	*n*
U. S. Marine Hospital★[3]	Baltimore	C. H. Binford	7,963	13,497	13,497	76	2	7/1	1-3	*n*
Veterans Administration										
Veterans Admin. Hospital[3]	Los Angeles	L. Kaplan	10,089	3,753	3,753	76	2	9/1	2-3	$275.00
Veterans Admin. Hospital[3]	Van Nuys, Calif.	P. J. Melnick	6,806	1,654	1,654	80	1	1/1, 7/1	1-3	275.00
Veterans Admin. Hospital[3]	Washington, D. C.	H. Rappaport	3,565	1,300	1,175	79	2	7/1	1-3	275.00
Veterans Admin. Hospital[3]	Hines, Ill.	W. L. McNamara	20,220	59,651	59,651	48	1	Varies	3-4	275.00
Veterans Admin. Hospital[3]	Des Moines, Iowa	K. R. Cross	4,795	1,310	1,310	54	3	1/1	3-4	275.00
Veterans Admin. Hospital[2]	Louisville, Ky.	H. Gordon	8,712	2,009	1,988	75	1	7/1	1-3	275.00
Veterans Admin. Hospital[2]	New Orleans, La.	J. Ziskind	4,084	849	849	78	1	7/1	1-3	275.00
Veterans Admin. Hospital[2]	Fort Howard, Md.	W. B. VandeGrift	4,050	621	610	55	2	Varies	1-3	275.00
Veterans Admin. Hospital[2]	Boston	J. D. Houghton	5,233	1,451	1,435	76	1	1/1	1-3	275.00
Veterans Admin. Hospital[2]	Dearborn, Mich.	H. J. Linn	3,437	521	521	56	2	7/1	1-3	275.00
Veterans Admin. Hospital[3]	New York City	E. Olson	10,168	4,132	4,107	47	2	1/1, 7/1	1-3	275.00
Veterans Admin. Hospital[1]	Staten Island, N. Y.	O. Auerbach	3,724	1,489	1,489	79	2	7/1	1-3	275.00
Veterans Admin. Hospital[3]	Cleveland, Ohio	J. T. Kahn	7,520	3,364	3,364	55	1	7/1	1-3	275.00
Veterans Admin. Hospital[1]	Aspinwall, Pa.	G. J. Brilmyer	6,405	1,625	1,625	51	2	7/1	1-3	275.00
Veterans Admin. Hospital[1]	Memphis, Tenn.	D. J. Greiner	10,295	3,464	2,654	73	3	7/1	1-3	275.00
Veterans Admin. Hospital[1]	Milwaukee, Wis.	J. M. Lubitz	6,830	2,808	1,262	53	2	7/1	1-3	275.00
[illegible]										
[illegible]	Birmingham, Ala.	R. D. Baker	21,928	3,474	3,460	37	5	7/1	1-2	50.00
nessee Coal, Iron and R.R. Company★[1]	Fairfield, Ala.	L. C. Posey and J. A. Cunningham	8,117	1,127	1,054	40	1	7/1	1-2	200.00

Abbreviations and other references will be found on page 89

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[5]	Surgical Specimens	Number Examined Microscopically	Autopsy Percentage	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Monthly)
University Hospital★[3]	Little Rock	A. Nettleship	4,145	3,410	3,336	45	3	7/1	1	150.00
Loma Linda Sanitarium and Hospital★[3]	Loma Linda, Calif.	C. A. Small and E. G. Hoxie	5,035	.....	.....	60	7	7/1	1-3	125.00
Cedars of Lebanon Hospital★[3]	Los Angeles	R. Straus	10,892	4,824	3,697	42	2	7/1	1	50.00
Children's Hospital★[1,4]	Los Angeles	R. E. Knutti	5,220	371	360	91	2	7/1	1-3	150.00
Hospital of the Good Samaritan★[1,4]	Los Angeles	R. Hammack and G. D. Maner	11,152	5,016	2,825	34	1	7/1	1	200.00
Los Angeles County Hospital★[2,4]	Los Angeles	E. M. Butt	58,118	10,000	9,310	41	4	Varies	2	150.00
St. Vincent's Hospital[1]	Los Angeles	J. E. Kahler	15,918	3,747	2,151	52	1	7/1	1	.....
White Memorial Hospital★[3]	Los Angeles	O. B. Pratt	8,001	4,725	3,957	60	5	....	1-3	167.50
tal★[1]	Oakland, Calif.	R. J. Parsons	9,136	1,640	1,115	46	2	....	1-3	130.00
★[3]	Oakland, Calif.	M. Friedman	11,672	4,495	2,810	66	1	7/1	1	125.00
Memorial Hospital★[3]	Pasadena, Calif.	A. G. Foord	10,240	6,020	4,835	67	3	1/1, 7/1	1-3	85.00
Mercy Hospital★[1]	San Diego, Calif.	D. A. DeSanto	13,594	.....	.....	26	1	7/1	1-3	100.00
French Hospital★[1,4]	San Francisco	G. A. Watson	4,915	2,721	1,004	46	1	....	1	.....
Mount Zion Hospital★[1,4]	San Francisco	G. R. Biskind	5,961	2,132	1,657	61	2	7/1	1	50.00
San Francisco Hospital★[1]	San Francisco	....	18,736	2,119	2,119	30	9	....	1	175.00
Stanford University Hospital★[3,4]	San Francisco	A. J. Cox	11,246	2,246	2,246	57	2	7/1	1-2	50.00
University of California Hospital★[1]	San Francisco	J. F. Rinehart	8,891	3,289	3,289	67	2	7/1 8/1, 9/1	1	50.00
Santa Clara County Hospital★[1]	San Jose, Calif.	H. Gifford	6,082	923	591	46	1	7/1	1-2	.....
Santa Barbara Cottage Hospital★[3]	Santa Barbara, Calif.	W. O. Russell	6,151	3,128	2,095	69	2	8/1, 9/1	3	.....
Children's Hospital[3]	Denver	H. D. Palmer	9,597	376	376	93	1	7/1	1-3	50.00
University of Colorado Medical Center										
Colorado General Hospital★[3]	Denver	J. B. McNaught	4,605	1,611	1,582	82	4	1/1, 7/1	1-3	95.00
Denver General Hospital★[1,2,6]	Denver	J. B. McNaught	9,382	1,134	1,680	37	1	7/1	1-2	50.00
St. Luke's Hospital★[3]	Denver	W. C. Black	9,441	7,167	4,454	51	1	5/1	1	50.00
Colorado State Hospital[1]	Pueblo, Colo.	M. Gallavan	995	190	182	50	1	....	1	120.00
Bridgeport Hospital★[3]	Bridgeport, Conn.	I. B. Akerson	12,585	3,013	3,033	38	1	7/1	1	150.00
Hartford Hospital★[3]	Hartford, Conn.	R. E. Kendall	23,855	7,659	6,879	55	3	7/1	1-3	.....
St. Francis Hospital★[1]	Hartford, Conn.	L. P. Hastings	15,592	1,013	4,013	32	1	....	1	.....
New Britain General Hospital★[3]	New Britain, Conn.	P. D. Rosahn	7,762	2,783	1,803	53	1	7/1	1	.....
Grace-New Haven Community Hospital New Haven Unit (University Service)★[3,4]	New Haven, Conn.	C. J. Bartlett	6,573	2,486	1,791	37	1	7/1	3	40.00
Norwalk Hospital★[1]	Norwalk, Conn.	R. N. Barnett	7,507	2,011	1,996	31	2	7/1	1	.....
Delaware Hospital★[3]	Wilmington, Del.	J. W. Howard	9,161	3,040	3,030	56	2	7/1	1	50.00
Memorial Hospital★[2]	Wilmington, Del.	J. W. Hooker	5,636	.....	.....	51	1	....	1-3	.....
Children's Hospital[1,4]	Washington, D. C.	E. C. Rice	7,731	459	105	80	1	....	1	.....
Doctors' Hospital★[1]	Washington, D. C.	O. B. Hunter	8,771	2,968	2,102	74	1	....	1-3	100.00
Gallinger Municipal Hospital★[3,4]	Washington, D. C.	A. R. Monaco	21,116	2,160	2,238	55	2	7/1	1-2	75.00
Garfield Memorial Hospital★[3,4]	Washington, D. C.	E. C. Rice	11,464	2,250	1,501	50	1	7/1	1-3	150.00
spital★[4]	Washington, D. C.	C. G. Geschickter	6,811	934	934	54	8	7/1	1-3	.....
sity Hospital★[1]	Washington, D. C.	R. M. Choisser	3,063	591	591	67	3	....	1-3	.....
	Washington, D. C.	H. H. Leffler	12,345	3,009	2,208	68	3	....	1-3	75.00
	Washington, D. C.	O. B. Hunter	11,588	3,921	3,667	65	1	7/1	1-2	100.00
	Jacksonville, Fla.	N. A. Murray	13,545	4,747	2,199	36	1	7/1	1	100.00
James M. Jackson Memorial Hospital★[4]	Miami, Fla.	P. R. Rezek	18,207	4,014	3,610	32	1	7/1	1	60.00
Crawford W. Long Memorial Hospital★[4]	Atlanta, Ga.	D. Ayer	16,005	2,941	2,941	40	2	7/1	1-2	75.00
Grady Memorial Hospital★[3,4]	Atlanta, Ga.	W. Sheldon	16,037	3,883	3,883	50	1	7/1	1	200.00
University Hospital★[3,4]	Augusta, Ga.	E. R. Pund	14,532	3,192	2,988	25	1	7/1	1-2	40.00
Emory University Hospital★[3]	Emory University, Ga.	S. Madden	9,757	2,713	2,743	46	2	7/1	1	50.00
Augustana Hospital★[3]	Chicago	G. Milles	7,737	3,279	2,750	48	3	1/1	1-3	30.00
Children's Memorial Hospital[1,4]	Chicago	J. P. Simonds	4,037	273	273	96	1	1/1	1	79.17
City of Chicago Municipal Tuberculosis Sanit.[1]	Chicago	H. C. Sweany	1,389	406	1,810	36	2	1/1, 7/1	1	.....
Cook County Hospital★[3,4]	Chicago	H. Popper	72,273	6,651	.....	23	30	1/1, 7/1	1	.....
Grant Hospital★[1]	Chicago	C. C. Mason and H. Grimm	7,625	.....	.....	53	1	7/1	1	125.00
Illinois Masonic Hospital★[3]	Chicago	L. S. King	6,542	1,875	1,698	57	3	....	1-3	.....
Mercy Hospital★[3]	Chicago	J. W. Henry	9,320	2,869	2,460	45	1	7/1	3	25.00
Michael Reese Hospital★[3,4]	Chicago	O. Saphir	16,081	3,923	3,923	67	7	1/1, 7/1	1-3	25.00
Mount Sinai Hospital★[3,4]	Chicago	I. Davidson	8,313	3,936	2,899	47	3	7/1	1-3	75.00
Norwegian-American Hospital★[1]	Chicago	A. Learner	7,097	1,033	1,525	35	1	....	3	25.00
Passavant Memorial Hospital★[3,4]	Chicago	M. Wheelock	5,838	1,598	.....	68	2	....	1-3	.....
Presbyterian Hospital★[3]	Chicago	G. M. Hass	12,651	4,336	4,336	66	2	1/1, 7/1	1-3	25.00
Provident Hospital★[1,4]	Chicago	A. C. Webb	5,287	1,591	1,591	54	1	7/1	1-3	50.00
Research and Educational Hospitals★[3]	Chicago	G. A. Bennett	6,691	2,741	2,741	83	3	7/1	1-3	55.00
St. Luke's Hospital★[3,4]	Chicago	E. T. Hirsch	15,486	6,715	.....	62	8	7/1	1-3	25.00
University of Chicago Clinics★[3]	Chicago	P. R. Cannon	12,615	3,913	1,921	79	2	Varies	1-2	.....
Wesley Memorial Hospital★[1,4]	Chicago	T. C. Laipply	13,015	2,825	2,617	66	3	1/1, 7/1	1-3+	25.00
Evanston Hospital★[3]	Evanston, Ill.	J. C. McCarter	7,995	3,583	2,112	86	2	....	3	50.00
St. Francis Hospital★[3]	Evanston, Ill.	H. I. Brown	10,957	2,387	2,190	60	1	7/1	1	75.00
Methodist Hospital of Central Illinois★[1,4]	Peoria, Ill.	D. O. Manshardt	6,700	4,186	2,758	32	1	7/1	1	100.00
St. Francis Hospital★[3,4]	Peoria, Ill.	J. E. Kraus	14,281	4,359	1,542	52	1	4/1	1-3	150.00
St. Joseph Hospital★[1]	Fort Wayne, Ind.	S. M. Rabson	7,782	2,621	1,091	38	2	1/1, 7/1	1-2	125.00
pital★[3]	Indianapolis	W. Dublin	10,246	2,205	2,173	33	3	7/1	1-3	100.00
cal Center★[3,4]	Indianapolis	J. L. Arbogast	10,995	3,175	2,075	56	4	7/1	2-3	33.33
	Indianapolis	H. M. Banks	21,752	11,827	7,507	32	2	7/1	1-3	200.00
	LaFayette, Ind.	J. M. McFadden	9,237	1,417	1,393	26	1	3/1	1	100.00
Ball Memorial Hospital★[2,4]	Muncie, Ind.	L. G. Montgomery	8,460	5,056	4,250	37	3	7/1	1	100.00
	South Bend, Ind.	....	7,013	.....	.....	40	1	7/1	2	150.00
[3]	Des Moines, Iowa	R. F. Birge	10,806	4,120	4,021	71	2	7/1	1-3	75.00
	Des Moines, Iowa	F. Coleman	7,812	2,086	2,086	51	10	1/1	1	100.00
University Hospitals★[3,4]	Iowa City	E. D. Warner	18,301	4,310	.....	63	3	7/1	1	50.00
University of Kansas Hospitals★[3,4]	Kansas City, Kan.	H. R. Wahl	8,463	5,128	3,700	65	4	....	1-3	.....
St. Fra	Wichita, Kan.	C. A. Hellwig	13,155	6,288	6,288	41	1	....	1	.....
Louisv.	Louisville, Ky.	A. J. Miller	8,053	1,604	1,600	41	3	7/1	1	45.00
Charit	New Orleans	E. Moss	45,781	10,677	10,677	49	10	7/1	1-4	25.00
Southe	New Orleans	E. H. Lawson	23,096	6,023	6,023	34	3	7/1	1-3	150.00
Touro	New Orleans	S. H. Colvin, Jr.	13,020	5,102	5,192	51	1	7/1	1	17.50
Shreveport Cha	Shreveport, La.	W. R. Mathews	13,666	3,325	3,325	45	1	7/1	1	60.00
Maine General	Portland, Me.	J. E. Porter	8,400	1,878	1,878	48	2	....	1+	50.00
Baltimore City Hospital★[3]	Baltimore	C. G. Warner	7,480	956	938	58	4	7/1	..	35.00
Johns Hopkins Hospital★[3]	Baltimore	A. Rich	10,857	4,650	4,650	72	3	....	1-3	.....
Sinai Hospital★[3,4]	Baltimore	T. Weinberg	9,227	3,172	3,172	58	2	7/1	1-3	25.00
Universi	Baltimore	H. R. Spencer	10,018	5,590	5,590	49	1	....	1-2	.....
Beverly	Beverly, Mass.	M. L. Trumbull	5,312	3,711	3,711	87	1	....	1	50.00
Beth Israel Hospital★[3]	Boston	M. J. Schlessinger	5,017	3,141	3,141	55	1	10/1	1-3	73.15
Boston City Hospital★[3,4]	Boston	F. Parker, Jr.	36,794	5,787	5,787	34	5	....	1-3	50.00
Boston Lying-In Hospital[1,4]	Boston	A. T. Hertig	3,425	1,472	1,472	70	2	7/1	1	50.00
Children's Hospital★[4]	Boston	S. Farber	8,329	1,101	1,101	80	8	Varies	1	41.67

Abbreviations and other references will be found on page 89

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[5]	Surgical Specimens	Number Examined Microscopically	Autopsy Percentage	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Massachusetts General Hospital★	Boston	T. B. Mallory	7,227	8,626b	8,626b	..	3	....	1-3	$ 41.67
Massachusetts Memorial Hospitals★[3]	Boston	H. Osgood	7,149	2,530	2,530	60	3	1/1, 7/1	1	50.00
New England Deaconess Hospital[2]	Boston	S. Warren	6,838	7,672	7,672	57	3	1/1, 7/1	1	75.00
Peter Bent Brigham Hospital★[3]	Boston	A. R. Moritz	4,987	1,820	1,820	68	2	....	1-3	......
St. Elizabeth Hospital★[1]	Boston	J. J. Larkin	6,900	2,080	1,786	53	1	7/1	1	75.00
Cambridge City Hospital★[1]	Cambridge	R. Z. Schulz	6,110	936	936	45	1	7/1	1	60.00
Mount Auburn Hospital★[1]	Cambridge, Mass.	H. E. MacMahon	6,873	2,191	2,191	41	1	1/1	1	50.00
Salem Hospital★[1]	Salem, Mass.	D. A. Nickerson	6,077	1,166	1,166	36	1	7/1	1-2	50.00
Pondville Hospital[1]	Walpole, Mass.	S. Warren	777	1,911	1,911	81	2	....	1	200.00
Worcester City Hospital★[1][4]	Worcester, Mass.	B. H. Goodale	7,859	3,627	3,129	39	2	....	1	50.00
Worcester State Hospital[1][4]	Worcester, Mass.		754	37	37	29	1	....	1	......
University Hospital★[1][4]	Ann Arbor, Mich.	C. V. Weller	16,101	7,411	7,411	62	1	7/1	1-5	111.40
Leila Y. Post Montgomery Hospital★[1]	Battle Creek, Mich.	G. W. Schelm	7,157	3,185	3,185	49	1	7/1	1-3	125.00
City of Detroit Receiving Hospital★[3][4]	Detroit	O. A. Brines	18,183	3,220	3,220	27	4	7/1	3	167.00
Grace Hospital★[4]	Detroit	C. I. Owen	17,768	12,820	12,820	64	3	7/1	1-3	75.00
Harper Hospital★[1][4]	Detroit	P. F. Morse	20,918	6,161	6,161	28	3	7/1	1	118.00
Henry Ford Hospital★[1][4]	Detroit	F. W. Hartman	16,116	5,325	5,325	69	3	7/1	1-3	200.00
Herman Kiefer Hospital[1]	Detroit	W. L. Brosius	5,111	288	288	45	1	7/1	1	......
Providence Hospital★[1]	Detroit	D. H. Kaump	13,067	3,802	3,802	52	1	7/1	1-3	140.00
St. Mary's Hospital★[1]	Detroit	M. L. Mason	9,970	3,078	2,921	51	2	7/1	3	......
Woman's Hospital★[1][4]	Detroit	D. C. Beaver	8,757	3,796	3,649	51	1	....	1	......
Wayne County General Hospital and Infirmary★[1][4]	Eloise, Mich.	S. E. Gould	7,511	2,469	2,469	35	2	7/1	1	216.25
Hurley Hospital★[4]	Flint, Mich.	G. R. Backus and R. J. Jernstad	18,009	2,861	2,358	30	1	7/1	1	......
Blodgett Memorial Hospital★[1]	Grand Rapids, Mich.	C. A. Payne	5,611	3,947	3,695	61	1	4/1	1	175.00
Butterworth Hospital★[1]	Grand Rapids, Mich.	P. A. VanPernis	10,701			13	1	7/1	1-3	100.00
St. Luke's Hospital★[4]	Duluth, Minn.	A. H. Wells	9,738	3,382	3,082	75	1	....	1	......
St. Mary's Hospital★[1]	Duluth, Minn.	W. A. Knoll	10,008	6,162	5,524	69	1	....	1	......
Minneapolis General Hospital★[3]	Minneapolis	S. S. Barron	9,259	1,713	1,136	41	1	1/1, 7/1	1-3	115.00
Northwestern Hospital★[4]	Minneapolis	A. Hertzog	9,200	2,511	2,313	56	1	7/1	1-3	115.00
Mayo Foundation	Rochester, Minn.	J. W. Kernohan	(See Page 89)			.	12	....	1-3	......
Ancker Hospital★[1]	St. Paul	J. F. Noble	7,029	950	822	71	1	3/1	1	91.50
Charles T. Miller Hospital★[1]	St. Paul	K. Ikeda	8,683	3,981	3,127	51	1	1/1	1-3	115.00
St. Louis County Hospital★[1]	Clayton, Mo.	H. Allen	3,226	818	710	48	1	....	1-3	......
Kansas City General Hospital No. 1★[1]	Kansas City, Mo.	V. Bohler	9,583	3,722	3,202	61	2	7/1	3	50.00
Research Hospital★[4]	Kansas City, Mo.	H. K. B. Allebach	7,628	3,105	3,295	64	1	....	1-3	100.00
St. Joseph Hospital★[3][4]	Kansas City, Mo.	R. W. Kerr	12,163	6,911	3,926	57	1	....	1-3	100.00
St. Luke's Hospital★[4]	Kansas City, Mo.	F. C. Helwig	8,680	5,860	4,920	77	6	7/1	1-3	75.00
Barnes Hospital★[1][4]	St. Louis	R. A. Moore	15,018	5,191	5,491	72	1	7/1	1-3	25.00
Homer G. Phillips Hospital★[1]	St. Louis	S. H. Gray	12,117	1,444	1,210	22	2	7/1	1	50.00
Jewish Hospital★[1][4]	St. Louis	S. H. Gray	8,517		...	42	1	....	1	......
Missouri Baptist Hospital★[1]	St. Louis	W. E. B. Hall	11,859	3,078	2,303	29	1	7/1	1-3	60.00
St. Louis City Hospital★[3][4]	St. Louis	S. Gray	17,898	2,652	4,214	53	1	7/1	1	95.00
St. Mary's Group of Hospitals★[4]	St. Louis	H. Pinkerton	15,720	9,306	8,285	49	3	Varies	1	35.00
Lincoln General Hospital★[1]	Lincoln, Neb.	F. H. Tanner	6,662	2,159	1,623	16	1	7/1	1	75.00
Creighton Memorial St. Joseph's Hospital★	Omaha	C. B. Russum	12,361	19,918	17,121	41	1	....	1-3	......
Nebraska Methodist Hospital★[1]	Omaha	J. R. Schenken	6,532	2,900	2,900	56	1	7/1	1	75.00
University of Nebraska Hospital★[4]	Omaha	J. P. Tollman	2,895	829	829	98	2	7/1	1-3	75.00
Mary Hitchcock Memorial Hospital★[4]	Hanover, N. H.	R. E. Miller	5,091	2,007	1,984	75	2	Varies	1-3	175.00
Elliot Hospital[1]	Manchester, N. H.	S. M. Brooks	3,852	1,511	1,071	53	1	....	1	......
Atlantic City Hospital★[1]	Atlantic City, N. J.	F. W. Konzelmann	8,237	1,124	1,163	35	1	7/1	1	......
Cooper Hospital★[1]	Camden, N. J.	W. T. Read, Jr.	9,346	2,321	2,069	35	1	....	1-3	83.33
West Jersey Hospital★[2]	Camden, N. J.	G. O. Favorite	8,172	1,720	3,468	58	2	....	1	150.00
Jersey City Hospital★[1][4]	Jersey City, N. J.	A. Gnassi	21,474	3,887	3,887	28	2	....	1-3	35.00
Monmouth Memorial Hospital★[1]	Long Branch, N. J.	J. A. Ferguson	7,023	1,212	1,180	41	1	7/1	1-2	150.00
Newark Beth Israel Hospital★[1][4]	Newark, N. J.	W. Antopol	11,129	3,833	3,833	36	9	7/1	1-3	25.00
Newark City Hospital★[1]	Newark, N. J.	H. S. Martland	12,014	2,400	1,134	23	2	6/1	1-3	......
Paterson General Hospital★[2]	Paterson, N. J.	A. H. Davis	9,315	4,202	3,440	40	1	....	1	100.00
Albany Hospital★[1][4]	Albany, N. Y.	A. W. Wright	11,832	6,200	6,200	61	3	7/1	1	41.66
Bender Hygienic Laboratory[1]	Albany, N. Y.	J. J. Clemmer	....	10,541	10,541	...	5	7/1	1-4	150.00
Binghamton City Hospital★[1]	Binghamton, N. Y.	V. W. Bergstrom	10,831	1,803	1,803	45	2	7/1	1-3	100.00
Brooklyn Hospital★[4]	Brooklyn	J. A. De Veer	8,913	2,912	2,912	41	4	7/1	1-3	25.00
Cumberland Hospital★[1][4]	Brooklyn	S. H. Polayes	6,300	1,000	1,000	40	1	7/1	1	120.00
Jewish Hospital★[1][4]	Brooklyn	D. M. Grayzel	15,314	5,473	4,007	45	5	1/1	1	30.00
Kings County Hospital★[1][4]	Brooklyn	C. G. Burn	61,158	5,569	5,569	20	6	7/1	1-2	50.00
Long Island College Hospital★[1][4]	Brooklyn	W. H. Cook	9,967	2,576	2,576	38	3	7/1	1	25.00
Maimonides Hospital Israel Zion Division★[1][4]	Brooklyn	J. Ravid	11,895	2,418	2,118	28	2	....	1	50.00
Methodist Hospital★[1]	Brooklyn	J. S. Howe	9,685	2,588	2,555	50	1	7/1	1	25.00
St. John's Hospital★[1]	Brooklyn	R. Gettinger	4,600	1,403	1,403	43	1	7/1	1	......
Buffalo General Hospital★[1]	Buffalo	K. L. Terplan	10,757	4,334	4,308	46	3	7/1	1-3	25.00
Edward J. Meyer Memorial Hospital★[1][4]	Buffalo	S. Sanes	10,523	2,781	1,935	46	3	7/1	3	100.00
Millard Fillmore Hospital★[4]	Buffalo	A. V. Postoloff	13,201	4,069	4,010	46	2	....	1-4	50.00
Meadowbrook Hospital★[1]	Hempstead, N. Y.	T. J. Curphey	4,941	5,568	1,217	70	2	7/1	1	115.00
Queens General Hospital★[1][4]	Jamaica, N. Y.	A. Angrist	14,625	46,509	46,509	45	7	7/1	2	70.00
Mount Vernon Hospital★[1]	Mount Vernon, N. Y.	J. G. Sharnoff	7,274	2,333	2,327	32	1	7/1	1-2	125.00
Beth Israel Hospital★[3][4]	New York City	A. Plaut	8,829	2,913	2,943	43	2	7/1	1	50.00
Bronx Hospital★[1]	New York City	J. Felsen	9,267	2,233	2,233	27	2	7/1	1-3	75.00
Doctors' Hospital[1]	New York City	J. R. Lisa	6,156	2,889	2,889	49	1	1/1, 7/1	1+	200.00
Flower and Fifth Avenue Hospitals★[4]	New York City	G. K. Higgins and F. Speer	11,634	16,188	12,174	31	4	6/1	1	......
Fordham Hospital★[1][4]	New York City	L. Ferraro	12,718	.....	.....	21	3	7/1	1	......
Goldwater Memorial Hospital★[1][4]	New York City	J. Rosenthal	1,372	1,230	1,230	50	5	7/1	1	70.00
Harlem Hospital★[1]	New York City	S. Weintraub	20,768	7,363	7,363	29	5	1/1, 7/1	1	70.00
Jewish Memorial Hospital★[1]	New York City	A. Angrist	5,733	1,691	2,190	41	1	7/1	1-2	100.00
Lenox Hill Hospital★[1]	New York City	R. Paltauf	12,649	3,020	3,018	47	1	Varies	1	50.00
Lincoln Hospital★[1]	New York City	C. R. Brown	12,770	1,990	1,990	28	3	....	1-3	60.00
Memorial Hospital[1]	New York City	F. W. Stewart	5,300	17,104	17,104	51	5	....	1-3	......
Metropolitan Hospital★[1][4]	New York City	A. Saccone	10,724	1,302	1,260	25	1	7/1	1	120.00
Montefiore Hospital for Chronic Diseases★[1][4]	New York City	H. M. Zimmerman	2,836	.....	.....	50	1	1/1, 7/1	1	50.00
Morrisania City Hospital★[4]	New York City	W. Aronson	12,326	3,539	3,539	23	4	7/1	1	60.00
Mount Sinai Hospital★[1][4]	New York City	P. Klemperer	16,171	7,054	7,054	59	13	1/1, 7/1	1-2	50.00
New York City Hospital★[4]	New York City	J. R. Lisa	10,167	1,631	1,384	47	4	7/1	1	70.00
New York Hospital★[2][4]	New York City	J. G. Kidd	20,172	.....	.....	66	3	7/1	1-3	25.00
New York Post-Graduate Medical School and Hospital★[3][4]	New York City	M. N. Richter	9,130	6,032	5,785	39	3	1/1-7/1	1-3	90.00
Presbyterian Hospital★[3][4]	New York City	H. P. Smith	29,670	5,701	4,904	66	2	....	1	62.50
Roosevelt Hospital★[1][4]	New York City	W. W. Brandes	8,703	3,115	3,115	36	2	7/1	1	70.00
St. Luke's Hospital★[3][4]	New York City	L. C. Knox	9,086	2,477	2,477	41	2	....	1-3	50.00
St. Vincent's Hospital★[1][4]	New York City	A. Rottino	13,116	2,438	2,438	46	2	7/1	1-3	50.00
Sydenham Hospital★[1]	New York City	A. Ginzler	5,614	1,368	1,368	36	1	7/1	1	75.00
Willard Parker Hospital[6][4]	New York City	V. B. Dolgopol	5,743	87	87	73	1	7/1	1	130.00

Abbreviations and other references will be found on page 89

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[5]	Surgical Specimens	Number Examined Microscopically	Autopsy Percentage	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Rochester General Hospital★[3,4]	Rochester, N. Y.	M. G. Bohrod	12,283	5,757	4,605	75	2	7/1	1-3	$70.00
St. Mary's Hospital★[3,1]	Rochester, N. Y.	S. M. Bouton	12,472	4,347	3,162	52	2	7/1	1-2	125.00
Strong-Memorial—Rochester Municipal Hospitals★[2,4]	Rochester, N. Y.	G. H. Whipple	17,003	.....	.....	72	1	7/1	1-4	83.33
Ellis Hospital★[3,4]	Schenectady, N. Y.	E. Kellert	12,432	3,779	3,779	27	2	7/1	1-3	100.00
Syracuse University Medical Center★[3]	Syracuse, N. Y.		.....	4,542*b*	4,542*b*	...	1	7/1	1-3	41.66
Samaritan Hospital★[1,1]	Troy, N. Y.	G. H. Klinck	4,367	2,000	2,000	37	1	4/1	1	125.00
Grasslands Hospital★[3,4]	Valhalla, N. Y.	S. Gross	4,470	880	817	58	2	7/1	1-3	75.00
White Plains Hospital★[1]	White Plains, N. Y.	H. D. Kesten	6,126		...	49	1	7/1	1	100.00
Charlotte Memorial Hospital★[3]	Charlotte, N. C.	P. Kimmelstiel	10,101	5,551	5,373	50	2	7/1	1-3	75.00
Duke Hospital★[3,4]	Durham, N. C.	W. D. Forbus	13,571	9,700	9,700	59	5	7/1	1	83.33
Watts Hospital★[1]	Durham, N. C.	J. U. Gunter	9,889	2,830	2,649	41	1	7/1	1	75.00
North Carolina Baptist Hospital★[3,4]	Winston-Salem, N. C.	R. Morehead	7,321	16,610	16,610	56	4	....	1-3	.....
City Hospital★[1]	Akron, Ohio	L. Catron	15,712	4,297	4,297	47	2	7/1	1-3	100.00
Aultman Hospital★[1]	Canton, Ohio	D. G. Henderson	11,303	1,849	21,262	57	2	7/1	1-2	75.00
Bethesda Hospital[2]	Cincinnati	E. A. Gall	8,626	3,217	2,286	68	1	7/1	1-2	100.00
Christ Hospital★[1]	Cincinnati	J. W. Leichliter	10,704	6,643	3,068	36	1	7/1	1	75.00
Cincinnati General Hospital★[1,4]	Cincinnati	R. W. Austin	14,757	2,774	2,668	47	6	7/1	1-2	.....
Good Samaritan Hospital★[3]	Cincinnati	W. McK. Germain	15,632	6,926	9,263	38	1	7/1	1-2	105.00
Jewish Hospital★[2]	Cincinnati	P. Wasserman	9,233	3,170	3,927	52	1	7/1	1	75.00
City Hospital★[3,4]	Cleveland	T. Kinney	14,470	2,404	2,404	54	6	7/1	1-4	.....
Cleveland Clinic Foundation Hospital[2]	Cleveland	J. B. Hazard	8,354	4,058	4,058	46	1	7/1	1-2	100.00
Mount Sinai Hospital★[3,4]	Cleveland	B. S. Kline	9,726	2,984	2,981	45	2	7/1	1	100.00
St. Luke's Hospital★[1]	Cleveland	R. Dominguez	12,713	3,823	3,373	49	1	6/25	1	60.00
St. Vincent Charity Hospital★[1]	Cleveland	D. J. Rehbock	8,338	2,281	2,241	41	1	7/1	1+	75.00
	Cleveland	H. T. Karsner	20,121	7,376	7,376	75	6	7/1	1+	25.00
	Columbus	R. M. Hartwell	10,020	2,498	2,398	31	1	7/1	1	150.00
y Hospital★[3,4]	Columbus, Ohio	H. L. Reinhart	8,360	3,890	2,901	69	3	7/1	1-3	50.00
	Columbus, Ohio	P. S. Fidler	10,769	6,769	5,800	46	1	7/1	1-2	100.00
	Dayton, Ohio	M. Oosting	13,236	..	....	42	1	7/1	1	.....
Mercy Hospital★[3]	Toledo, Ohio	E. L. Burns and J. B. Rucker	11,051	5,506	4,479	49	1	7/1	3	110.00
Toledo Hospital★[3]	Toledo, Ohio	B. Steinberg	9,432	2,479	1,887	55	2	7/1	1-3	125.00
	Youngstown, Ohio	H. K. Giffen	18,968	4,011	4,011	44	3	7/1	1-3	100.00
	Oklahoma City	B. Halpert	5,914	2,020	1,912	43	2	7/1	1-2	35.00
	Portland, Ore.	H. H. Foskett	13,910	5,098	5,682	84	1	7/1	1-3	75.00
	Portland, Ore.	C. H. Manlove	13,411	4,087	3,545	50	1	7/1	1-3	75.00
	Portland, Ore.	F. R. Menne	8,000	....	....	40	2	....	1	.....
University of Oregon Medical School Hospitals and Clinics★[1,4]	Portland, Ore.	W. C. Hunter	6,437	2,286	2,286	63	6	7/1	1-3	75.00
Abington Memorial Hospital★[1]	Abington, Pa	J. Eiman	7,997	2,819	2,797	53	1	7/1	2	50.00
Allentown Hospital★[3]	Allentown, Pa.	J. J. Wenner	11,355	4,915	3,015	39	1	7/1	1-2	100.00
Sacred Heart Hospital★[1]	Allentown, Pa	D. E. Stader	7,340	3,657	2,868	30	1	7/1	1	150.00
St. Luke's Hospital★[2]	Bethlehem, Pa	H. A. Rothrock	8,561	1,628	1,628	36	1	11/1	1-2	100.00
Bryn Mawr Hospital★[1]	Bryn Mawr, Pa	M. M. Strumia	7,667	2,838	3,731	53	2	1/1, 7/1	1	75.00
George F. Geisinger Memorial Hospital★[1]	Danville, Pa	H. F. Hunt	7,596	2,203	2,239	51	1	7/1	1	75.00
Fitzgerald-Mercy Hospital★[1]	Darby, Pa	D. McGrew	6,650	..	.	55	1	6/1	1	None
Episcopal Hospital★[1,1]	Philadelphia	W. P. Belk	10,146	1,440	6,806	32	1	....	1	50.00
Germantown Dispensary and Hospital★[1]	Philadelphia	F. B. Lynch, Jr.	7,462	1,541	960	51	1	7/1	1-2	50.00
Graduate Hospital of the University of Pennsylvania★[3]	Philadelphia	E. A. Case	7,416	2,228	2,228	42	2	7/1	1-3	.....
Hahnemann Hospital★[3,4]	Philadelphia	J. E. Gregory	11,910			61	2	....	1-3	50.00
Hospital of the University of Pennsylvania★[1,4]	Philadelphia	E. B. Krumbhaar	17,749	5,262	5,262	79	12	Varies	1-3	Varies
Jefferson Medical College Hospital★[3]	Philadelphia	C. J. Bucher	19,439	266,807	266,807	59	5	....	1-3	.....
Jewish Hospital★[1,4]	Philadelphia	H. Ingleby	9,203	4,159	3,639	60	3	7/1	1-2	50.00
Lankenau Hospital★[3]	Philadelphia	C. E. Brown	6,162	6,971	6,971	53	2	7/1	1-3	50.00
Mount Sinai Hospital★[2,4]	Philadelphia	D. R. Meranze	6,209	2,650	2,650	72	2	7/1	1-2	50.00
Pennsylvania Hospital★[3]	Philadelphia	A. R. Crane	10,204	2,501	...	59	2	7/1	1-3	20.00
Philadelphia General Hospital★[3,4]	Philadelphia	J. H. Clark	22,053	3,259	3,181	58	6	....	1-3	70.00
Presbyterian Hospital★[3]	Philadelphia	R. P. Custer	7,116	.	.....	57	3	....	1-3	.....
Temple University Hospital★[1,4]	Philadelphia	E. E. Aegerter	13,664	6,730	6,730	49	1	7/1	3	50.00
Allegheny General Hospital★[1]	Pittsburgh	S. R. Haythorn	11,560	2,503	2,503	23	1	9/1	1	100.00
Children's Hospital[1,4]	Pittsburgh	M. L. Menten	5,197	238	238	57	1	7/1	1-3	75.00
Elizabeth Steel Magee Hospital[1,4]	Pittsburgh	J. Beauregard	9,102	2,823	2,748	20	1	7/1	1-3	41.67
Mercy Hospital★[3,4]	Pittsburgh	H. H. Permar	14,695	4,032	3,830	34	1	9/1	1-3	100.00
Montefiore Hospital★[1,4]	Pittsburgh	K. Yardumian	7,204	2,423	4,178	41	2	7/1	1-2	50.00
Presbyterian Hospital★[1,4]	Pittsburgh	G. R. Lacy	5,026	2,615	2,615	33	2	....	1-5	41.67
St. Francis Hospital★[3]	Pittsburgh	R. H. Hamilton and A. J. Bruecken	14,850	3,207	2,089	21	3	7/1	3	110.00
Western Pennsylvania Hospital★[1,4]	Pittsburgh	A. Graham	12,138	2,985	2,985	19	1	....	1	75.00
Reading Hospital★[3,4]	Reading, Pa.	W. P. Jennings	9,125	2,252	1,749	57	1	7/1	1	100.00
Robert Packer Hospital★[2]	Sayre, Pa.	C. H. DeWan	10,560	2,185	1,050	49	1	7/1	1-3	150.00
[1]	Williamsport, Pa.	M. G. Colvin	8,643	3,839	2,405	31	1	7/1	3	75.00
[3]	Providence, R. I.	B. E. Clarke	13,702	5,007	5,007	61	4	7/1	1-2	50.00
tate of South Carolina★[3]	Charleston, S. C.	K. M. Lynch	11,886	15,767	10,511	59	1	7/1	3	150.00
	Columbia, S. C.	H. H. Plowden	11,650	.....	.....	31	1	7/1	1	100.00
tal★[3]	Memphis, Tenn.	N. E. Leake	18,146	6,177	6,157	19	3	7/1	1	75.00
	Memphis, Tenn.	D. Sprunt	17,612	2,658	2,658	63	11	7/1	1	.....
St. Joseph Hospital★[1]	Memphis, Tenn.	T. C. Moss	11,269	5,315	4,165	41	1	7/1	1	.....
Nashville General Hospital★[1,4]	Nashville, Tenn.	W. A. DeMonbreun	7,319	969	888	37	2	7/1	1-2	40.00
Vanderbilt University Hospital★[1]	Nashville, Tenn.	E. W. Goodpasture	9,296	1,766	1,500	59	2	7/1	1	.....
Baylor University Hospital★[1,4]	Dallas, Texas	J. M. Hill	16,450	15,050	23,050	30	4	7/1	1-3	50.00
Parkland Hospital★[1,4]	Dallas, Texas	C. A. Ashworth	8,007	2,751	2,751	56	2	7/1	1-3	50.00
St. Paul's Hospital★[3]	Dallas, Texas	J. L. Goforth	12,667	4,766	3,991	24	3	7/1	1-3	100.00
John Sealy Hospital (Univ. of Texas Medical Branch)★[3]	Galveston, Texas	P. Brindley	9,110	3,481	3,481	53	4	....	1-3	50.00
Hermann Hospital★[3]	Houston, Texas	V. H. Keiller	9,589	3,409	2,295	55	1	7/1	1-2	100.00
Jefferson Davis Hospital★[3,4]	Houston, Texas	W. W. Coulter	11,340	2,077	4,749	31	1	1/1	1	50.00
Santa Rosa Hospital★[3]	San Antonio, Texas	J. M. Moore and S. W. Bohls	14,565	5,201	4,156	28	1	7/1	1-3	200.00
Salt Lake County General Hospital★[3]	Salt Lake City	F. D. Gunn	3,551	1,243	1,141	55	2	7/1	1-3	50.00
Mary Fletcher Hospital★[3,4]	Burlington, Vt.	B. Pearson	5,903	1,402	1,390	58	4	7/1	1-2	100.00
University of Virginia Hospital★[3]	Charlottesville, Va.	J. R. Cash	14,021	2,903	2,903	68	1	7/1	1	110.00
Norfolk General Hospital★[3]	Norfolk, Va.	E. D. Levy and L. J. Motyca	9,706	4,386	5,527	35	1	7/1	2-3	100.00
Med. College of Virginia Hospital Div.★[3,4]	Richmond, Va.	F. L. Apperly	15,621	6,832	6,832	43	5	7/1	1	46.50
Kings County Hospital★[3]	Seattle, Wash.	C. R. Jensen	12,015	2,057	1,379	47	1	7/1	1	125.00
Providence Hospital★[3]	Seattle	D. G. Mason	10,749	3,230	1,831	43	1	7/1	1-3	100.00
Swedish Hospital★[1]	Seattle	P. K. Lund	10,398	3,264	3,182	45	1	7/1	1	100.00
Deaconess Hospital★[3]	Spokane, Wash.	G. A. C. Snyder	9,010	4,129	2,687	57	1	7/1	3	150.00
St. Luke's Hospital★[1]	Spokane, Wash.	O. O. Christianson	7,486	2,659	1,706	59	1	7/1	1-3	125.00

·Abbreviations and other references will be found on page 89

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[b]	Surgical Specimens	Number Examined Microscopically	Autopsy Percentage	Asst. Res. and Residencies Offered[a]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
St. Joseph's Hospital★[1]	Tacoma, Wash.	C. R. McColl	13,409	.....	.....	50	1	6/1	1-2	$200.00
Tacoma [illegible]★	Tacoma, Wash	C. P. Larson	8,209	4,848	4,075	52	3	7/1	1-3	150.00
Charlest[illegible]	Charleston, W. Va	W. G. Putschar	9,581	2,312	2,262	45	1	7/1	1-3	125.00
State of [illegible]	Madison, Wis.	W. D. Stovall and D. M. Angevine	12,408	3,268	3,218	84	4	7/1	3	25.00
Columbia Hospital★[1,4]	Milwaukee	G. Ritchie	4,821	1,744	1,206	59	1	11/1	3	50.00
Milwaukee County Hospital★[1,4]	Milwaukee	J. F. Kuzma	16,335	1,042	1,355	29	2	Varies	1-3	82.26
St. Joseph's Hospital★	Milwaukee	W. A. D. Anderson	12,570	...	.....	27	1	4/1	1-3	75.00
Queen's Hospital★[1]	Honolulu, Hawaii	S. Price	12,278	3,315	3,315	61	2	7/1, 10/1	1-3	100.00

18. PEDIATRICS

The following services are approved by the Council and the American Board of Pediatrics
(See footnotes 1 and 2 for number of years credit)

Hospitals, 200, Assistant Residencies and Residencies, 791

Name of Hospital	Location	Chief of Service	Inpatients Treated[b]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[a]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Navy										
†U. S. Naval Hospital★[1]	Chelsea, Mass.	C. Eley	...	.....	...	...	2	....	1	n
U. S. Naval Hospital★[1]	Philadelphia	J. F. Shaul	235	6,672	22	15	1	Varies	1	n
Nonfederal										
Children's Hospital[2,4]	Birmingham, Ala.	A. A. Walker	1,778	5,901	40	20	2	5/1	1-2	$100.00
Jefferson and Hillman Hospitals★[2,4]	Birmingham, Ala.	A. A. Walker	5,273	4,730	202	45	3	7/12	1-3	50.00
Norwood Hospital★[1,4]	Birmingham, Ala.	S. P. Wainwright and G. W. Griffin	851	10,573	17	7	1	7/1	3	100.00
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company★[1]	Fairfield, Ala.	E. A. Harris	760	8,898	22	11	2	7/1	1-2	200.00
General Hospital of Fresno County★[1,4]	Fresno, Calif.	R. J. Van Wagenen	799	2,074	63	26	1	7/1	1	205.00
California Babies and Children's Hosp.[1,4]	Los Angeles	V. Wright	449	17,820	3	2	1	7/1	1	100.00
Children's Hospital★[2,4]	Los Angeles	J. C. Wilson	561	2,887	3	3	1	7/1	1-3	208.00
Los Angeles County Hospital★[2,4]	Los Angeles	E. F. Patton	4,382	5,015	205	123	6	Varies	3	165.00
Queen of Angels Hospital★[1]	Los Angeles	M. H. Jones	1,464	989	...	57	1	7/1	1-3	100.00
White Memorial Hospital★[1,4]	Los Angeles	M. B. Brooks	439	8,736	28	16	4	....	1-2	147.33
Children's Hospital of the East Bay[2,4]	Oakland, Calif	C. D. Sweet	3,440	21,270	57	53	6	1/1, 7/1	1-2	150.00
Children's Hospital★[2,4]	San Francisco	C. F. Gelston	705	......	17	15	2	7/1	1	50.00
†Franklin Hospital★[1,4]	San Francisco	C. Bost	926	......	13	9	1	....	1	......
St. Mary's Hospital★[1]	San Francisco	R. Flood	.....	......	...	...	1	4/1	1	100.00
San Francisco Hospital★[4]	San Francisco	M. B. Olney	2,116	......	114	52	3	....	1	175.00
Stanford University Hospitals★[2,4]	San Francisco	H. K. Faber	511	17,877	17	13	4	7/1	1-2	50.00
University of California Hospital★[2,4]	San Francisco	W. C. Deamer	657	13,148	56	45	7	7/1	1	100.00
Children's Hospital[2,4]	Denver	F. C. Johnson	5,379	3,316	92	85	8	Varies	1-2	50.00
University of Colorado Medical Center [illegible]★[2,4]	Denver	H. Gordon	433	4,185	27	25	5	7/1	1-3	75.00
[illegible]	Denver	H. H. Gordon	1,830	5,793	61	35	2	7/1	1-2	50.00
†H[illegible]	Hartford, Conn.	....	820	......	28	21	2	7/1	1-2	......
Grace-New Haven Community Hospital New Haven Unit (University Service)★[2,4]	New Haven, Conn.	G. Powers	3,120	11,072	97	74	5	7/1	1	40.00
Hospital of St. Raphael★[1]	New Haven, Conn.	W. C. McGuire	1,617	467	14	9	1	7/1	1	75.00
†Delaware Hospital★[1]	Wilmington, Del.	C. E. Wagner	1,491	422	51	36	1	7/1	...	110.00
Children's Hospital[2,4]	Washington, D. C.	J. S. Wall	7,032	77,395	207	165	6	1/1, 7/1	1	50.00
Freedmen's Hospital★[2,4]	Washington, D. C.	R. B. Scott	512	1,615	38	16	4	7/1	1-3	116.66
Gallinger Municipal Hospital★[2,4]	Washington, D. C.	L. K. Sweet	1,335	8,991	50	28	8	7/1	1-3	75.00
†Providence Hospital★[1]	Washington, D. C.	W. F. O'Connell	4,483	761	93	78	3	7/1	1	......
†Crawford W. Long Memorial Hospital★	Atlanta, Ga.	L. H. Muse	1,332	909	83	40	2	7/1	1-2	75.00
Grady Memorial Hospital★[2]	Atlanta, Ga.	R. W. Dickson	1,010	28,098	69	33	5	7/1	1	20.00
Henrietta Egleston Hosp. for Children[2,4]	Atlanta, Ga.	M. H. Roberts	1,104	......	58	22	3	1/1, 7/1	1	55.00
University Hospital★[4]	Augusta, Ga.	P. Mulherin	1,441	1,422	61	13	3	7/1	1-2	40.00
Children's Memorial Hospital[2,4]	Chicago	S. Gibson	4,168	46,006	120	106	19	1/1, 7/1	1	75.00
Cook County Hospital★[2,4]	Chicago	A. Levinson	9,100	35,449	377	...	14	1/1, 7/1	1-3	27.50
Mercy Hospital—Loyola Univ. Clinics★[1,4]	Chicago	H. W. Elghammer	1,439	1,094	35	26	2	7/1	1	25.00
Michael Reese Hospital★[2,4]	Chicago	J. K. Calvin	3,742	7,199	206	176	6	7/1	1-3	25.00
†Mount Sinai Hospital★[1,4]	Chicago	P. Aries	744	1,178	11	7	1	4/1	1	50.00
Presbyterian Hospital★[2,4]	Chicago	H. N. Sanford	1,478	3,954	45	39	3	....	1-2	25.00
Provident Hospital★[2,4]	Chicago	E. Beasley	1,905	3,244	65	62	1	....	1	......
Research and Educational Hospitals★[2,4]	Chicago	H. G. Poncher	345	6,806	34	29	4	7/1	1-2	55.00
St. Joseph Hospital★[1]	Chicago	A. Hoyne	509	949	5	5	1	10/1	1-3	75.00
St. Luke's Hospital★[2,4]	Chicago	A. D. Biggs	504	5,522	14	12	1	7/1	1-2	......
St. Vincent's Infant and Maternity Hosp.[1,4]	Chicago	L. W. Sauer	675	......	4	4	2	1/1, 7/1	1	50.00
University of Chicago Clinics★[2,4]	Chicago	F. H. Wright	1,087	20,306	54	46	8	7/1	1-3	25.00
Little Company of Mary Hospital★[1]	Evergreen Park, Ill.	E. G. Lawler	3,014	......	18	11	1	1/1	1	100.00
Indianapolis General Hospital★[2,4]	Indianapolis	B. K. Rust	800	5,022	131	49	2	7/1	1-2	70.00
Indiana University Medical Center★[2,4]	Indianapolis	M. Winters	2,111	3,874	181	112	4	....	1-2	33.33
Iowa Methodist Hospital (Raymond Blank Memorial Hospital for Children)★[2]	Des Moines, Iowa	L. F. Hill	2,685	......	53	49	5	7/1	1-2	75.00
University Hospitals★[2,4]	Iowa City	P. C. Jeans	854	2,865	74	54	5	7/1	1	50.00
University of Kansas Hospitals★[2,4]	Kansas City, Kan.	H. C. Miller	846	4,677	69	52	1	....	1	......
Louisville General Hospital★[2,4]	Louisville, Ky.	J. W. Bruce	1,882	9,612	71	30	7	7/1	1	45.00
†St. Joseph Infirmary★[1]	Louisville, Ky.	H. S. Andrews	1,735	......	41	20	2	7/1	1-2	75.00
Charity Hospital of Louisiana★[2,4]	New Orleans	....	2,807	21,624	168	95	16	7/1	1-2	25.00
Touro Infirmary★[2]	New Orleans	J. Graubarth	523	4,943	20	10	2	7/1	1	17.50
[illegible]★	Shreveport, La.	C. Webb	1,671	......	78	43	2	7/1	1-3	60.00
†[illegible]ital★[1]	Lewiston, Maine	G. L. Brooks	860	414	48	35	1	7/1	1	75.00
[illegible]	Baltimore	H. E. Harrison	613	3,316	106	82	2	7/1	...	35.00
Johns Hopkins Hospital★[2,4]	Baltimore	F. F. Schwentker	1,446	40,581	205	168	12	....	1+	......
†Mercy Hospital★[1]	Baltimore	E. Friedenwald	402	......	25	16	1	7/1	1	......
†Sinai Hospital★[1]	Baltimore	A. J. Schaffer	511	......	34	28	2	7/1	1-2	25.00
Union Memorial [illegible][1,4]	Baltimore	S. B. Grimes	......	......	...	...	2	7/1	1	......
[illegible]	Baltimore	C. L. Joslin	560	8,104	88	51	6	7/1	1-2	75.00
[illegible]	Boston	M. J. English	4,522	9,534	293	80	1	....	1	66.67
[illegible]	Boston	J. M. Baty	1,577	......	86	47	7	....	1	25.00
Children's Hospital★[2,4]	Boston	C. Janeway	904	18,907	187	155	17	....	1	41.67
Massachusetts General Hospital★[2]	Boston	A. M. Butler	667b	5,024b	...	...	7	7/1	1-3	41.67

Abbreviations and other references will be found on page 89

18. PEDIATRICS—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[8]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
†New England Hospital for Women and Children★[1]	Boston	E. Zaudy	634	1,835	10	5	2	1/1	1	$ 50.00
University Hospital★[2,4]	Ann Arbor, Mich.	J. Wilson	1,393	12,157	62	45	11	7/1	1-5	111.40
Children's Hospital[2,4]	Detroit	P. V. Woolley, Jr.	4,118	22,650	...	218	22	....	1	50.00
†Harper Hospital★[1]	Detroit	D. J. Barnes	479	......	...	...	3	7/1	1	118.00
Henry Ford Hospital★[2,4]	Detroit	J. A. Johnston	1,678	21,212	37	21	4	7/1	1-2	200.00
Providence Hospital★[1]	Detroit	L. P. Sonda	2,017	......	35	23	1	....	1	......
†Butterworth Hospital★[2]	Grand Rapids, Mich.	....	773	......	51	21	1	7/1	2	100.00
†Saginaw General Hospital★[1]	Saginaw, Mich.	R. M. Kempton	1,254	123	23	14	1	1/1	1	100.00
St. Mary's Hospital★[1]	Duluth, Minn.	R. P. Buckley	826	......	16	16	3	....	1	......
Minneapolis General Hospital★[2,4]	Minneapolis	A. V. Stoesser	2,780	3,408	70	38	6	1/1, 7/1	1-3	115.00
†Northwestern Hospital★	Minneapolis	E. S. Platou	2,961	......	59	37	2	1/1	1	50.00
†St. Barnabas Hospital★[1]	Minneapolis	C. Morrison	3,984	......	38	29	1	....	1	......
University Hospitals★[2,4]	Minneapolis	I. McQuarrie	1,794	4,025	121	104	12	7/1	1-3	115.00
Mayo Foundation[2]	Rochester, Minn.	R. L. J. **Kennedy**	(See Page	89	...	...	12	....	1	......
Kansas City General Hospital No. 1★[1]	Kansas City, Mo.	H. M. Gilkey	1,739	5,583	69	39	3	1/1	1-3	50.00
Homer G. Phillips Hospital★[2,4]	St. Louis	P. J. White	3,789	5,124	167	31	4	7/1	1	57.50
†Jewish Hospital★[1,4]	St. Louis	A. A. Margulis	789*b*	......	...	...	1	....	1	......
St. Louis Children's Hospital[2,4]	St. Louis	A. F. Hartmann	3,319	......	129	90	18	1/1	1	10.00
St. Louis City Hospital★[2,4]	St. Louis	A. F. Hartmann and V. Hrdlicka	1,351	3,655	126	63	6	7/1	1	95.00
St. Mary's Group of Hospitals★[2]	St. Louis	J. Zahorsky	1,932	13,074	47	31	7	Varies	3	35.00
†Creighton Memorial St. Joseph Hosp.★[1,4]	Omaha	J. H. Murphy	1,399	2,660	18	5	1	7/1	1	100.00
†University of Nebraska Hospital★[2]	Omaha	J. A. Henske	422	......	24	23	1	7/1	1-2	75.00
Jersey City Hospital★[2,4]	Jersey City, N. J.	C. P. DeFuccio	1,694	6,367	47	26	2	Varies	1-3	35.00
Babies Hospital, Coit Memorial[1]	Newark, N. J.	E. L. Minard	1,907	......	40	22	2	7/1	1	100.00
†St. Michael's Hospital★[2]	Newark, N. J.	H. A. Murray	1,942	1,808	37	29	3	7/1	2	75.00
Albany Hospital★[2,4]	Albany, N. Y.	O. A. Faust	828	1,847	47	37	4	7/1	1	41.66
†Beth-El Hospital★[1]	Brooklyn	A. M. Litvak	4,307	1,254	68	63	2	1/1, 7/1	1-2	100.00
Brooklyn Hospital★[1]	Brooklyn	H. A. Naumer	7,839	5,629	...	...	2	7/1	1	25.00
Cumberland Hospital★[1,4]	Brooklyn	T. B. Givan	1,756	3,888	47	41	2	7/1	1	70.00
†Greenpoint Hospital★[1]	Brooklyn	I. Schiff	817	2,691	36	25	2	7/1	1	120.00
Jewish Hospital★[2,4]	Brooklyn	B. Kramer	765	10,748	65	38	7	1/1, 4/1	1	30.00
Kings County Hospital★[2,4]	Brooklyn	G. Brockway and L. Krahulik	4,958	4,158	211	95	4	7/1	1-2	50.00
Long Island College Hospital★[2,4]	Brooklyn	C. A. Weymuller	679	7,475	16	12	4	7/1	1-2	25.00
Methodist Hospital★[1]	Brooklyn	W. F. Watton	508	1,699	27	23	2	7/1	2	25.00
Norwegian Lutheran Deaconesses' Home and Hospital★[4]	Brooklyn	J. A. Monfort and T. B. Givan	......	......	...	...	1	....	1	......
†St. Mary's Hospital★[1]	Brooklyn	F. B. Hart	400	717	10	9	1	1/1	2	50.00
Children's Hospital[2,4]	Buffalo	M. I. Rubin	2,052	......	83	76	10	1/1, 7/1	1-3	25.00
Edward J. Meyer Memorial Hospital★[1,4]	Buffalo	F. J. Gustina	1,812	6,864	50	18	3	7/1	4	100.00
Queens General Hospital★[2,4]	Jamaica, N. Y.	H. A. Reisman	1,397	2,601	61	42	4	7/1	2	70.00
Bellevue Hosp. *Div. III—N. Y. Univ.*★[2,4]	New York City	L. E. Holt, Jr.	1,651*b*	23,950*b*	130	62	5	7/1	1	45.00
†Beth Israel Hospital★[1,4]	New York City	P. Cohen and J. M. Lewis	381	1,905	9	4	1	7/1	1-2	50.00
Flower and Fifth Avenue Hospitals★[2,4]	New York City	R. Benson	1,065	3,021	42	22	4	6/1	1	......
Fordham Hospital★[1]	New York City	J. Golomb	1,646*b*	1,885*b*	...	...	3	4/1	1	70.00
†Gouverneur Hospital★[1]	New York City	H. E. Cohen	408	4,172	3	2	1	7/1	1	70.00
Harlem Hospital★[2,4]	New York City	M. Gleich	4,007	7,543	200	90	4	1/1, 7/1	1	70.00
Lenox Hill Hospital★[2,4]	New York City	H. Chaplin	531	......	12	8	1	Varies	1-2	50.00
Lincoln Hospital★[2,4]	New York City	H. S. Altman	1,118	4,511	41	31	3	....	1-3	60.00
Metropolitan Hospital★[2,4]	New York City	R. A. Benson	1,583	4,801	50	27	5	1/1, 7/1	...	120.00
Morrisania City Hospital★[2,4]	*New York City*	*L. H. Barrenberg*	*901*	*2,120*	*27*	*20*	2	7/1	1	60.00
Mount Sinai Hospital★[2,4]	New York City	....	......	......	...	...	5	1/1, 7/1	1+	50.00
New York City Hospital★[2,4]	New York City	G. H. Irving	1,087	4,174	60	63	3	7/1	1	120.00
New York Foundling Hospital[1,4]	New York City	A. J. Vignec	763	......	7	7	7	Varies	½	50.00
New York Hospital★[2,4]	New York City	S. Z. Levine	1,164	34,906	121	102	10	7/1	1-5	25.00
†New York Infirmary★[1]	New York City	R. M. Bakwin	258	4,161	5	3	1	7/1	1	75.00
New York Post-Graduate Medical School and Hospital★[2,4]	New York City	A. DeSanctis	688	12,891	38	21	5	Varies	1-2	90.00
Presbyterian Hospital★[2,4]	New York City	R. McIntosh	4,060	32,189	119	...	4	....	1-2	100.00
†Roosevelt Hospital★[1]	New York City	A. T. Martin	489	1,845	4	3	1	7/1	1	103.33
†*St. Clare's Hospital*★	*New York City*	C. H. O'Regan	2,598	4,000	18	17	3	7/1	1-2	25.00
St. Luke's Hospital★[2,4]	New York City	H. F. Jackson	680	6,146	16	10	4	Varies	1-2	50.00
St. Vincent's Hospital★[2,4]	New York City	A. J. Vignec	1,784	3,403	59	35	2	7/1	1-2	50.00
†Sydenham Hospital★[1]	New York City	M. H. Edelman	508	1,665	51	37	1	....	1	......
Genesee Hospital★[1,4]	Rochester, N. Y.	J. Aikman	405	560	15	10	1	1/1	1	83.33
†Rochester General Hospital★[1,4]	Rochester, N. Y.	F. W. Bush	602	1,991	14	13	1	7/1	1-2	70.00
Strong Memorial and Rochester Municipal Hospitals★[2,4]	Rochester, N. Y.	S. W. Clausen	1,251	8,709	63	52	7	7/1	1-4	41.66
†St. Vincent's Hospital★[1]	Staten Island, N. Y.	G. W. McCormick	4,375	438	44	24	1	7/1	1	110.00
Sea View Hospital[1,4]	Staten Island, N. Y.	B. Ratner	384	......	6	2	7	1/1, 7/1	1	120.00
Syracuse Memorial Hospital★[2,4]	Syracuse, N. Y.	T. C. Wyatt	880	......	28	19	4	7/1	1-2	......
Grasslands Hospital★[1,4]	Valhalla, N. Y.	F. D. Barnes	525	1,340	15	15	2	7/1	1-3	75.00
Charlotte Memorial Hospital★[1,4]	Charlotte, N. C.	C. H. Gay	1,789	3,629	46	24	1	1/1	1-3	75 00
†Presbyterian Hospital[1]	Charlotte, N. C.	J. R. Ashe	804	203	8	3	1	....	1	......
Duke Hospital★[2,4]	Durham, N. C.	W. C. Davison	2,374	8,695	105	63	12	7/1	1	83.33
Watts Hospital★[2]	Durham, N. C.	A. H. London	878	276	19	9	1	7/1	1	75.00
†Sternberger Hospital for Women and Children[1]	Greensboro, N. C.	S. F. Ravenel	......	......	...	...	1	....	1	......
†Rex Hospital★[1,4]	Raleigh, N. C.	A. S. Root	1,826	929	10	3	1	4/1	1	155.00
Babies' Hospital[1,4]	Wilmington, N. C.	J. B. Sidbury	1,414	......	28	7	2	1/1, 7/1	1-2	100.00
James Walker Memorial Hospital★[1]	Wilmington, N. C.	....	2,949	1,100	83	7	1	7/1	1-2	100.00
North Carolina Baptist Hospital★[2,4]	Winston-Salem, N. C.	D. J. Butler	539	2,113	28	18	3	....	1-3	......
Trinity Hospital★[1,4]	Minot, N. D.	R. E. Dyson	429	5,039	...	...	1	....	1	......
Children's Hospital	Akron, Ohio	H. H. Musser	2,824	519	88	37	5	7/1	1-2	95.00
Children's Hospital[2,4]	Cincinnati	A. A. Weech	6,311	......	135	98	16	7/1	1-2	35.00
Cincinnati General Hospital★[2,4]	Cincinnati	A. A. Weech	1,841	8,012	120	82	16	7/1	1-2	......
University Hospitals★[2,4]	Cleveland	C. F. McKhann	1,756	14,420	80	...	7	7/1	1	25 00
Children's Hospital[2,4]	Columbus, Ohio	E. H. Baxter	......	......	...	...	13	1/1, 7/1	1	60.00
University Hospitals★[2,4]	Oklahoma City	C. K. Hall	774	4,611	72	40	4	7/1	1-2	35.00
†Hillcrest Memorial Hospital★[1]	Tulsa, Okla.	H. C. Graham	1,393	......	27	13	5	7/1	1	75.00
University of Oregon Medical School Hospitals and Clinics★[2,4]	Portland, Ore.	J. B. Bilderback	1,055	5,567	77	69	3	7/1	1-2	75.00
†Abington Memorial Hospital★[1]	Abington, Pa.	T. S. Wilder	......	......	15	13	1	7/1	1	50.00
Babies' Hospital[1,4]	Philadelphia	J. E. Bowman	296	25,397	4	3	2	7/1, 12/1	1	83.33
Children's Hospital[2,4]	Philadelphia	J. Stokes, Jr.	3,354	......	70	52	13	7/1	1-3	41.67
Children's Hospital of the Mary J. Drexel Home[1,4]	Philadelphia	J. M. Lyon	1,013	9,753	12	11	1	7/1	1	125.00

Abbreviations and other references will be found on page 89

18. PEDIATRICS—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[3]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
†and Hospital★[1]	Philadelphia	P. S. Barba	3,132	909	38	17	1	7/1	1-2	$ 50.00
University of	Philadelphia	J. Scott	610	401	...	...	1	7/1	1-2	......
	Philadelphia	C. C. Fischer	625	......	40	21	2	....	1-3	50.00
Pennsylvania★[2,4]	Philadelphia	J. Stokes, Jr.	355	3,578	52	31	5	Varies	1-3	......
ed. Coll of Pa★[2]	Philadelphia	E. P. Bacon	2,201	2,311	7	3	1	7/1	1	50.00
Hospital★[1]	Philadelphia	E. L. Bauer	586	9,267	37	24	1	....	1	......
Jewish Hospital★[1,4]	Philadelphia	S. Goldberg	673	378	22	16	2	7/1	1-2	50.00
Philadelphia General Hospital★[2,4]	Philadelphia		1,224	......	88	..	3	....	1-3	......
St. Christopher's Hospital for Children[1,4]	Philadelphia	W. E. Nelson	2,533	......	38	23	6	....	1	......
†St. Luke's and Children's Medical Center★[1]	Philadelphia	J. L. Redman	470	......	20	15	1	6/1	1	125.00
Temple University Hospital★[2,4]	Philadelphia	W. E. Nelson	582	7,011	25	20	7	7/1	3	50.00
Children's Hospital[2,4]	Pittsburgh	H. T. Price	5,197	......	125	71	9	7/1	1-3	75.00
†St. Francis Hospital★[1]	Pittsburgh	B. J. McCormick	3,120	632	10	3	1	....	1	......
†Western Pennsylvania Hospital★[1]	Pittsburgh	H. C. Flood	1,553	616	13	5	1	Varies	1	75.00
Robert Packer Hospital★[2]	Sayre, Pa	J. M. Higgins	462	562	5	5	1	7/1	1-3	150.00
†Charles V. Chapin Hospital[1]	Providence, R. I.	H. G. Calder	1,352	491	31	26	3	....	1	......
†Rhode Island Hospital★[1]	Providence, R. I.	W. P. Buffum	1,125	......	36	17	2	7/1	1	50.00
Roper Hospital★[2,4]	Charleston, S. C.	M. W. Beach	2,112	5,214	98	53	4	7/1	1-4	25.00
†Columbia Hospital★[1,4]	Columbia, S. C.	W. Weston, Jr.	2,089	......	15	17	2	7/1	1	75.00
T. C. Thompson Children's Hospital[1]	Chattanooga, Tenn	H. J. Starr	1,867	7,116	152	16	3	1/1, 7/1	1	90.00
†Knoxville General Hospital★[1]	Knoxville, Tenn	H. S. Christian	2,377	755	99	22	1	7/1	1	60.00
John Gaston Hospital★[2]	Memphis, Tenn	F. T. Mitchell	1,899	6,321	101	71	6	4/1	1-2	......
†Methodist Hospital★[2]	Memphis, Tenn	C. V. Croswell	1,221	......	41	25	1	7/1	1	150.00
St. Joseph Hospital★[2]	Memphis, Tenn	K. M. Buck	1,451	1,157	44	18	2	....	1-2	200.00
George W. Hubbard Hospital of Meharry Medical College★[2,4]	Nashville, Tenn	E. P. Crump	591	4,103	30	10	2	7/1	1-3	75.00
Vanderbilt University Hospital★[2,4]	Nashville, Tenn.	A. Christie	821	10,896	115	69	5	7/1	1	...
Children's Medical Center[2,4]	Dallas, Texas	H. L. Moore	3,102	15,079	81	...	12	....	1-3	100.00
†Parkland Hospital★[1]	Dallas, Texas	W. H. Bradford	2,212	2,471	27	16	2	7/1	3	50.00
John Sealy Hospital (Univ. of Texas Medical Branch)★[2,4]	Galveston, Texas	A. E. Hansen	630	11,003	38	23	5	....	1-3	50.00
†Hermann Hospital★[1,4]	Houston, Texas	R. Blattner	428	4,179	25	17	2	....	1	50.00
Jefferson Davis Hospital★[1,4]	Houston, Texas	H. Schaffer	1,019	8,219	112	30	2	7/1	1-3	50.00
†Santa Rosa Hospital★[1]	San Antonio, Texas	S. Kaliski	1,980	2,923	170	78	2	7/1	1	75.00
Salt Lake County General Hospital★[2,4]	Salt Lake City	J. A. Anderson	456	3,143	24	20	6	....	1-2	50.00
†Mary Fletcher Hospital★[1]	Burlington, Vt.	S. S. Corbin	326	11	17	10	2	7/1	1	100.00
University of Virginia Hospital★[2,4]	Charlottesville, Va	W. W. Waddell, Jr.	481	4,486	61	32	4	7/1	1-4	62.00
Medical College of Virginia, Hosp. Div.★[2,4]	Richmond, Va.	L. Sutton, Jr.	1,221	7,117	67	29	8	7/1	1	......
Child	Seattle	J. I. Durand	566	5,255	41	36	1	4/1, 7/1	1	125.00
†King	Seattle	W. B. Seelye	1,607	1,291	73	21	1	7/1	1	125.00
State ital★[2,4]	Madison, Wis.	J. E. Gonce, Jr.	712	3,631	28	25	1	7/1	3	25.00
Milw	Milwaukee	F. R. Janney	5,051	25,968	79	60	7	7/1	2	75.00
Milwaukee County Hospital★[2,4]	Milwaukee	B. J. Malnekoff	2,077	4,297	38	4	3	7/1	1-3	82.26
†Kauikeolani Children's Hospital[1]	Honolulu, Hawaii	D. C. Marshall	4,504	......	86	53	1	1/1	1+	200.00

19. PHYSICAL MEDICINE

The following services are approved by the Council and the American Board of Physical Medicine

Hospitals, 34; Assistant Residencies and Residencies, 70

Name of Hospital	Location	Chief of Service	Patients Treated	Number of Treatments	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Army								
†Letterman General Hospital★	San Francisco	A. V. Bateman	5,994	285,400	2	1/1	1-3	n
†Fitzsimons C	Denver	J. H. Kuitert	2,506	119,005	2	1/1	1-3	n
Walter Reed	Washington, D.C	E. M. Smith	8,573	238,036	3	1/1	1-3	n
†Percy Jones	Battle Creek, Mich	A. E. White	28,849	346,505	2	....	1-3	n
Veterans Administration								
Veterans Admin. Hospital	Chamblee, Ga	W. Steiner	......	20,400	1	7/1	1+	$275.00
†Veterans Admin. Hospital	Hines, Ill	L. Newman	37,369	482,960	7	....	1-3	275.00
Veterans Admin. Hospital	Framingham, Mass	F. Friedland	10,130	194,794	2	7/1	1-2	275.00
†Veterans Admin. Hospital	Jefferson Barracks, Mo	F. Ewerhardt	2,589	71,974	2	7/1	1+	275.00
†Veterans Admin. Hospital	New York City	H. Kessler	21,729	287,884	3	1/1, 7/1	1-3	275.00
†Veterans Admin. Hospital	Portland, Ore	E. W. Fowlks	3,230	65,750	1	7/1	1-3	275.00
Nonfederal								
†Los Angeles County Hospital★[4]	Los Angeles	O. Huddleston	......	14,633	2	Varies	2	......
†W	Los Angeles	F. B. Moor	500*b*	20,000*b*	1	7/1	1-3	147.33
	San Francisco	W. H. Northway	......	6,561	2	7/1	1-2	50.00
	San Francisco	F. Baker	......	7,123*b*	1	7/1	1	50.00
	Denver	H. Dinken	2,905	64,050	1	Varies	1-3	75.00
	Emory University, Ga	R. L. Bennett	7,836	......	1	....	1-3	......
	Warm Springs, Ga	R. L. Bennett	......	84,000	1	....	1-3	......
	Chicago	C. O. Molander	1,534	16,282	2	7/1	1	25.00
	Chicago	J. S. Coulter	7,784*b*	12,696*b*	2*h*	....	1	......
	Kansas City, Kan	G. M. Martin	2,775	25,347	3	....	1½	......
	Boston	A. L. Watkins	1,639*b*	16,265*b*	2	....	1-3	41.67
	Minneapolis	M. Knapp	7,677	12,141	2	7/1	1-3	115.00
	Rochester, Minn	F. H. Krusen	(See page 89)		6	....	1	......
Y. Univ.★	New York City	H. A. Rusk	......	......	7	Varies	1	70.00
	New York City	H. Behrend	872	53,738	1	....	1	120.00
	New York City	J. Weiss	78,386	91,746	2	1/1	1+	40.00
Diseases★[4]	New York City	K. Harpuder	......	......	1	....	1+	50.00
Sinai Hospital★[1]	New York City	......	7,310	9,920	1	1/1, 7/1	1	50.00
†Presbyterian Hospital★[4]	New York City	W. B. Snow	77,771	221,144	1	....	1	41.66
St. Luke's Hospital★	New York City	R. Muller	1,123	104,604	1	Varies	1	50.00
†Cleveland Clinic	Cleveland	W. J. Zeiter	16,257	39,919	1	7/1	1-3	100.00
†Hospital of the		G. M. Piersol	1,078	12,883	1	Varies	1	......
†Medical College		......	2,053	32,512	1	....	1	46.50
†State of Wiscon		H. D. Bouman	3,050	38,382	2	7/1	3	25.00

Abbreviations and other references will be found on page 89.

20. PLASTIC SURGERY

The following services are approved by the Council and the American Board of Plastic Surgery

Hospitals, 18; Assistant Residencies and Residencies, 47

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Veterans Administration										
Veterans Admin. Hospital	Hines, Ill.	P. W. Greeley	378	......	15	3	1	....	2	$275.00
†Veterans Admin. Hospital	New York City	H. Conway	356	......	1	1	5	1/1, 7/1	1-3	275.00
Nonfederal										
†Franklin [illegible]	San Francisco, Calif.	H. M. Blackfield	363	......	2	2	1	....	1-2	100.00
†Universi [illegible]	Kansas City, Kan.	....	268	......	5	3	2	....	2-4	......
†Charity [illegible]	New Orleans	A. N. Owens	(Included in Surgery)			...	3	7/1	1-3	75.00
Blodgett Memorial Hospital★	Grand Rapids, Mich.	F. N. Smith	398	......	...	...	1	7/1	1-3	175.00
Mayo Foundation	Rochester, Minn.	G. B. New	(See page 89)		...	...	10	....	3	......
Barnes Hospital★	St. Louis	J. B. Brown	1,276	......	11	6	5	....	1-2	......
†Hospital of St. Barnabas and for Women and [illegible]	Newark, N. J.	L. A. Peer	410b	1,200b	...	...	2	....	2	150.00
Ki [illegible]	Brooklyn	W. A. Coakley	1,490	2,487	20	3	2	7/1	1-2	50.00
N [illegible] ledical School and Hospital★[4]	New York City	J. W. Hinton	188	1,068	...	...	2	7/1	2	......
Presbyterian Hospital★[1]	New York City	J. P. Webster	351	3,775	...	...	4	....	1-2	100.00
Strong Memorial-Rochester Municipal Hospitals★[4]	Rochester, N. Y.	F. O. J. Young	206	370	...	...	1	7/1	1-2	66.66
†University Hospitals★	Oklahoma City	J. F. Burton	......	703	...	...	1	7/1	1-2	35.00
Graduate Hospital of the University of Pennsylvania★	Philadelphia	R. H. Ivy	212	45	...	...	1	7/1	1-2	None
†Jefferson Medical College Hospital★	Philadelphia	....	501	74	0[1]	2	2	....	1-3	......
†John Sealy Hospital (Univ. of Texas Medical Branch)★[1]	Galveston, Texas	T. Blocker	118	997	2	1	3	....	1-3	50.00
†State of Wisconsin General Hospital★[1]	Madison, Wis.	W. B. Slaughters	425	......	3	3	1	1/1, 7/1	1-2	25.0

21. PROCTOLOGY

Hospitals, 11; Assistant Residencies and Residencies, 28

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Navy										
†U. S. Naval Hospital★	Oakland, Calif.	H. G. Young	1,117	2,156	...	...	1	....	1	n
Nonfederal										
†Mercy Hospital-Loyola University Clinics★	Chicago	C. L. Martin	269	314	7	4	1	7/1	1	$ 25.00
†City of Detroit Receiving Hospital★[4]	Detroit	....	(Included in Surgery)			...	1	4/1	1+	100.00
Mayo Foundation	Rochester, Minn.	L. A. Buie	(See page 89)		...	...	8	....	1	......
†Millard Fillmore Hospital★	Buffalo	L. S. Knapp	352	......	2	2	1	....	1-4	50.00
[illegible]	Youngstown, Ohio	P. J. Fuzy	340	5	17	3	4	7/1	1	100.00
[illegible]	Allentown, Pa.	M. S. Kleckner	320	95	12	5	3	....	1	......
[illegible] Hospital★	Philadelphia	B. F. Haskell	382	2,664	...	...	1	7/1	1-3	......
†Presbyterian Hospital★	Pittsburgh	K. Zimmerman	417b	516b	...	...	5	Varies	1-5	33.0
†Reading Hospital★[4]	Reading, Pa.	F. G. Runyean	386	213	4	1	1	7/1	1	100.00
†Milwaukee County Hospital★[1]	Milwaukee	A. G. Schutte	160	360	...	...	2	7/1	1-3	82.2

22. PSYCHIATRY

The following services are approved by the Council and the American Board of Psychiatry and Neurology

(See footnotes 1, 2 and 3 for number of years credit)

Hospitals, 227; Assistant Residencies and Residencies, 1,618

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Army										
Letterman General Hospital★[3]	San Francisco	E. B. Litteral	2,305	1,046	1	1	15	1/1	1-3	n
Walter Reed General Hospital★[2]	Washington, D. C.	B. E. Smith	1,385	1,212	3	2	17	1/1	1-2	n
†Percy Jones General Hospital★[1]	Battle Creek, Mich.	....	......	......	...	...	4	....	1	n
†Brooke General Hospital★[2]	San Antonio, Texas	R. E. Chambers	2,014	4,609	...	...	2	1/1	1-3	n
Madigan General Hospital★[1]	Fort Lewis, Wash.	D. B. Peterson	322	43	...	...	5	1/1	1	n
United States Navy										
†U. S. Naval Hospital★[3]	Bethesda, Md.	G. N. Raines	779	515	3	3	10	Varies	1-3	n
†U. S. Naval Hospital★[1]	Philadelphia	I. C. Nichols	771	3,178	24	18	2	Varies	1	n
†U. S. Naval Hospital★[1]	Portsmouth, Va.	....	......	......	...	...	2	....	1	n
United States Public Health Service										
U. S. Public Health Service Hospital[2]	Lexington, Ky.	K. W. Chapman	3,650	......	31	21	8	7/1	1-2	n
U. S. Marine Hospital[2, 7]	New York City	V. T. Davis	1,695	918	11	3	5	7/1	1-3	n
U. S. Public Health Service Hospital[2]	Fort Worth, Texas	S. D. Vestermark	2,510	......	8	4	12	....	2	n
Veterans Administration										
†Veterans Admin. Hospital[3]	N. Little Rock, Ark.	C. N. Baganz	1,640	17	110	75	15	1/1, 7/1	1½-3	$275.00
†Veterans Admin. Hospital[3]	Los Angeles, Calif.	J. Pessin	5,377	......	150	...	35	6/1	3	275.00
†Veterans Admin. Hospital[1]	Palo Alto, Calif.	J. J. Prusmack	2,336	10,781	50	34	32	1/1, 7/1	1-3	275.00
†Veterans Admin. Hospital[2]	Fort Lyon, Colo.	L. V. Lopez	1,161	......	32	11	6	7/1	1-2	275.00
†Veterans Admin. Hospital[2]	Downey, Ill.	A. Rodriguez	3,289	......	69	25	15	....	2-3	275.00
Veterans Admin. Hospital[3]	Hines, Ill.	F. G. Gerty	653	......	34	3	10	Varies	1-3	275.00
†Veterans Admin. Hospital[3]	Marion, Ind.	S. T. Ginsberg	2,863	......	90	33	15	Varies	1-3	275.00
†Veterans Admin. Hospital[3]	Topeka, Kan.	R. C. Anderson	2,072	......	28	21	98	7/1	1-3	275.00
†Veterans Admin. Hospital[2]	Lexington, Ky.	S. R. Baker	1,982	......	34	20	8	1/1	1-2	275.00
†Veterans Admin. Hospital[1]	Louisville, Ky.	D. Moore	981	......	...	...	2	7/1	1-3	275.00
†Veterans Admin. Hospital[3]	Perry Point, Md.	M. D. Spottswood	808	12	...	...	20	7/1	1-3	275.00
†Veterans Admin. Hospital[2]	Bedford, Mass.	J. L. Hoffman	6,821	8,758	70	35	12	1/1, 7/1	1-2	275.00

Numerical and other references will be found on page 89

22. PSYCHIATRY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[5]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
†Veterans Admin. Hospital[2]	Boston	....	(See Neurology)		...	...	4	....	1	$275.00
†Veterans Admin. Hospital[3]	Framingham, Mass.	W. Bloomberg	570	......	3	2	14	7/1	1-3	275.00
†Veterans Admin. Hospital[3]	Fort Custer, Mich.	I. Kimbell, Jr.	3,014	......	60	64	20	7/1	3	275.00
†Veterans Admin. Hospital[3]	Minneapolis	D. W. Hastings and R. W. Howell	476	......	1	1	15	....	3	275.00
†Veterans Admin. Hospital[2]	St. Cloud, Minn.	C. F. Davis	1,825	......	21	17	2	....	2	275.00
†Veterans Admin. Hospital[3]	Lyons, N. J.	A. T. Colley	4,514	......	129	89	25	9/1	1-3	275.00
†Veterans Admin. Hospital[1]	Canandaigua, N. Y.	....	2,338	......	45	22	4	....	1	275.00
Veterans Admin. Hospital[3]	New York City	H. Flowers	515	3,350	9	6	20	1/1, 7/1	1-3	275.00
†Veterans Admin. Hospital[1]	Northport, N. Y.	E. F. Bogen	3,344	......	...	...	30	9/15	2-3	275.00
†Veterans Admin. Hospital[3]	Cleveland	R. K. Kalina	769	......	3	2	7	7/1	1-3	275.00
†Veterans Admin. Hospital[3]	Coatesville, Pa.	A. O. Hecker	2,755	......	41	22	40	4/1	1-3	275.00
†Veterans Admin. Hospital[3]	Memphis, Tenn.	S. Paster	881	1,260	11	7	6	7/1	1-3	275.00
†Veterans Admin. Hospital[3]	McKinney, Texas	....	......	......	...	...	10	....	1-3	275.00
†Veterans Admin. Hospital[2]	Waco, Texas	H. Rubin	4,582	39,080	61	28	8	Varies	1-3	275.00
†Veterans Admin. Hospital[3]	Richmond, Va.	B. Nagler	788	......	3	1	6	Varies	1-3	275.00
†Veterans Admin. Hospital[1]	Roanoke, Va.	C. W. Grady	......	......	...	...	3	....	1-3	275.00
†Veterans Admin. Hospital[3]	Mendota, Wis.	W. F. Lorenz	662	150	11	1	15	2/1	1-3	275.00
†Veterans Admin. Hospital[2]	Milwaukee	A. I. Rosenberger	1,000	900	45	17	4	Varies	2	275.00
Nonfederal										
Compton Sanitarium[1,4]	Compton, Calif.	G. E. Myers	776	......	14	1	4	Varies	1	250.00
Napa State Hospital[1,4]	Imola, Calif.	W. A. Oliver	5,419	350	380	93	2	Varies	1	255.00
Livermore Sanitarium[1]	Livermore, Calif.	O. B. Jensen	703	600	12	...	1	7/1	1	250.00
Los Angeles County Hospital★[3,4]	Los Angeles	M. G. Carter	6,264	......	120	36	1	Varies	1	165.00
†Patton State Hospital[3]	Patton, Calif.	F. F. Williams	4,175	......	424	15	2	....	1	....
Langley-Porter Clinic[3,4]	San Francisco	K. M. Bowman	341	13,704	...	...	34	Varies	1-3	240.00
Mount Zion Hospital★[2]	San Francisco	N. Reider	9	3,564	...	...	2	7/1	1	50.00
Standford University Hospitals★[3,4,7]	San Francisco	G. S. Johnson	......	......	...	...	1	....	1-3	50.00
University of California Hospital★[3,4]	San Francisco	K. M. Bowman	60	2,881	...	...	1	Varies	1	100.00
†Stockton State Hospital[1]	Stockton, Calif.	F. H. Adams	5,472	107	378	87	3	....	1	....
Mendocino State Hospital[2,4]	Talmage, Calif.	D. B. Williams	3,692	......	102	35	2	....	1	....
University of Colorado Medical Center Colorado Psychopathic Hospital[3,4]	Denver	F. G. Ebaugh	1,024	6,139	19	15	26	7/1	1-3	125.00
Colorado State Hospital[2,4]	Pueblo, Colo.	F. H. Zimmerman	5,518	......	406	200	4	....	1	275.00
Institute of Living (Neuro-Psychiatric Institute of the Hartford Retreat)[2,4]	Hartford, Conn.	C. C. Burlingame	1,348	......	13	5	9	Varies	1+	250.00
Connecticut State Hospital[2,4]	Middletown, Conn.	B. Simon	3,921	......	262	79	3	Varies	1+	215.00
†Silver Hill Foundation[1]	New Canaan, Conn.	W. B. Terhune	281	......	...	...	1	Varies	1+	400.00c
Grace-New Haven Community Hospital New Haven Unit (University Service)★[2,4]	New Haven, Conn.	F. Redlich	451	3,223	3	2	5	7/1	1	40.00
†Fairfield State Hospital[1,4]	Newtown, Conn.	S. Friedman	3,286	......	228	161	5	Varies	1	300.00
Norwich State Hospital[2,4]	Norwich, Conn.	R. H. Guthrie	3,443	......	276	43	6	Varies	1-3	200.00
Delaware State Hospital[2,4]	Farnhurst, Del.	M. A. Taruminaz	1,575	1,445	111	26	7	1/1, 7/1	1-2	125.00
Gallinger Municipal Hospital★[1,4]	Washington, D. C.	J. F. Gilbert	4,108	......	88	19	2	7/1	1-2	100.00
St. Elizabeths Hospital★[3,4]	Washington, D. C.	W. Overholser	8,016	......	432	245	8	7/1	1	200.00
†University Hospital★[1,4]	Augusta, Ga.	H. Cleckley	396	......	3	...	1	....	1	....
†Emory University Hospital★[1]	Emory University, Ga.	C. A. Whitaker	975	6,000	3	1	4	1/1, 7/1	1-2	250.00
†Alton State Hospital[1]	Alton, Ill.	A. Simon	2,662	248	257	3	4	1/1	1	200.00
Chicago State Hospital[2,4]	Chicago	I. Spinka	6,666	3,469	680	143	6	1/1, 2/1	1-3	200.00
Cook County Hospital★[2,4]	Chicago	C. A. Neyman	8,585	......	187	...	6	1/1, 7/1	1-3	75.00
Illinois Neuropsychiatric Institute[3,4,7]	Chicago	F. J. Gerty	187	5,639	1	1	10	7/1	3	55.00
†Loretto Hospital★[1]	Chicago	J. J. Madden	263	395	4	3	1	Varies	1	150.00
Michael Reese Hospital★[3,4,7]	Chicago	R. R. Grinker	259	4,236	...	...	10	Varies	3	....
St. Luke's Hospital★[1,4]	Chicago	F. J. Gerty	801	275	4	3	1	7/1	1-2	....
University of Chicago Clinics★[3,4]	Chicago	H. Brosin	158	5,753	...	2	8	7/1	1-3	25.00
Veterans Rehabilitation Center[1,4]	Chicago	D. Slight	216	11,709	...	...	9	....	1	200.00
Wesley Memorial Hospital★[1,4]	Chicago	T. T. Stone	535	......	23	8	9	1/1, 7/1	1-4	25.00
Elgin State Hospital[3,4]	Elgin, Ill.	E. Liebert	7,276	3,163	390	126	6	Varies	1-3	200.00
†Jacksonville State Hospital[1,4]	Jacksonville, Ill.	H. Hoffman	944	48	361	1	4	Varies	1-2	200.00
†Kankakee State Hospital[1,4]	Kankakee, Ill.	C. J. Katz	5,253	......	350	97	3	1/1	1-3	200.00
†Lincoln State School and Colony[1]	Lincoln, Ill.	W. W. Fox	4,888	......	100	17	2	....	1	....
Manteno State Hospital[2,4]	Manteno, Ill.	M. Wallenberg	8,654	......	529	...	5	Varies	1	150.00
Peoria State Hospital[2,4]	Peoria, Ill.	H. B. Knowles	3,420	......	284	48	2	7/1	1	150.00
†North Shore Health Resort[1]	Winnetka, Ill.	S. Liebman	451	......	3	3	2	7/1	1	50.00
Central State Hospital[2]	Indianapolis	M. A. Bahr	2,934	......	209	10	4	Varies	.....	425.00
Indianapolis General Hospital★[3]	Indianapolis	E. W. Meride	669	956	14	2	3	7/1	1-3	70.00
†[illegible]	Indianapolis	P. B. Reed	330	1,200	3	...	2	7/1	1-2	200.00
[illegible]	Logansport, Ind.	E. A. Coats	2,565	......	183	15	8	Varies	1	250.00
[illegible]	Council Bluffs, Ia.	W. E. Ash	702	......	23	...	2	7/1	1-2	200.00
[illegible] spital[3,4]	Iowa City	W. R. Miller	366	2,068	...	...	5	7/1	1	50.00
[illegible]	Topeka, Kan.	R. L. Worthington	141	14,662	...	...	10	....	1-3	....
[illegible]	Louisville, Ky.	S. Ackerly	695	1,666	11	5	2	7/1	1-2	45.00
[illegible] a★[1,4]	New Orleans	....	(Included in Neurology)				2	7/1	1-3	25.00
[illegible]	New Orleans	H. O. Colomb	1,085	1,459	17	10	4	1/1, 7/1	1-3	....
[illegible]	Baltimore	J. C. Whitehorn	252	9,487	2	...	4	....	1-3	....
[illegible]	Baltimore	C. H. Rogerson and W. Muncie	647	......	13	4	5	7/1	1-3	125.00
Spring Grove State Hospital[2,4]	Catonsville, Md.	S. W. Weltmer	3,148	1,581	176	71	16	....	1	....
†Chestnut Lodge [illegible]	Rockville, Md.	D. M. Bullard	81	......	2	...	4	7/1	2	175.00
[illegible]	Sykesville, Md.	R. E. Gardner	3,602	......	209	49	10	7/1	1+	220.00
[illegible] ital[2,4]	Towson, Md.	R. McC. Chapman	388	125	7	4	8	3/1, 7/1	1-3	100.00
[illegible]	Boston	H. C. Solomon	1,251	6,590	10	2	14	9/1	1	128.00
[illegible]	Boston	E. V. Semrad	2,900	......	382	122	4	7/1	1-2	140.00
†Joseph H. [illegible]	Boston	M. Cohen	1,258	392	...	...	2	1/1, 7/1	1	83.33
M[illegible]	Boston	S. Cobb	175b	2,591b	...	...	7	....	1-3	41.67
†M[illegible]	Boston	W. Malamud	......	......	...	...	3	7/1	2-3	200.00
†[illegible] Brigham Hospital★	Boston	H. M. Fox	(Included in Internal Medicine)				2	9/1	1	125.00
Foxboro State Hospital[2,4]	Foxboro, Mass.	R. B. Dexter	1,542	263	105	3	2	1/1, 4/1	1	100.00
Gardner State Hospital[2,4]	Gardner, Mass.	C. E. Thompson	1,762	......	101	5	9	Varies	1-2	250.00
Danvers State Hospital[2,4]	Hathorne, Mass.	P. B. Hagopian	3,038	1,042	288	31	2	....	1	140.00
Medfield State Hospital[2]	Medfield, Mass.	E. K. Holt	1,990	......	181	26	2	....	1-2	....
Northampton State Hospital[2,4]	Northampton, Mass.	J. H. F. Longpre	2,928	......	230	29	2	Varies	1+	....
Grafton State Hospital[2,4]	North Grafton, Mass.	H. L. Paine	2,129	847	127	34	2	7/1	1	140.00
Monson State Hospital[1]	Palmer, Mass.	L. J. Robinson	1,573	375	54	....	2d	7/1	1	115.00
†Austen Riggs Foundation[1]	Stockbridge, Mass.	R. P. Knight	166	......	...	...	2	7/1, 9/1	1-2	75.00
Taunton State Hospital[2,4]	Taunton, Mass.	R. M. Chambers	2,557	2,224	241	82	7	7/1	2-4	140.00
Metropolitan State Hospital[1,4]	Waltham, Mass.	W. C. Gaebler	1,976	......	194	74	2	1/1	1	....
McLean Hospital[2,4]	Waverley, Mass.	K. J. Tillotson	440	......	7	3	4	4/1, 7/1	1	....
Westboro State Hospital[2,4]	Westboro, Mass.	R. V. Hadley	2,222	......	141	27	2	Varies	1-2	....

Numerical and other references will be found on page 89

22. PSYCHIATRY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Worcester State Hospital[3, 4]	Worcester, Mass.	D. Rothschild	3,536	550	259	74	20	Varies	1-3	....
University Hospital★[3, 4]	Ann Arbor, Mich.	R. W. Waggoner	409	5,275	...	...	14	7/1	1-5	$111.40
City of Detroit Receiving Hospital★[1, 4]	Detroit	T. V. Hoagland	5,348	425	94	34	4	7/1	1	167.00
Henry Ford Hospital★[2, 4, 7]	Detroit	T. J. Heldt	644	10,209	17	10	5	7/1	1-3	200.00
Wayne County General Hospital and Infirmary★[3, 4]	Eloise, Mich.	L. S. Lipschutz	5,164	3,055	302	76	7	7/1	1-3	251.25
Kalamazoo State Hospital[2, 4]	Kalamazoo, Mich.	C. M. Schrier	3,870	1,395	332	33	4	1/1	2-3	300 00
Pontiac State Hospital[2, 4]	Pontiac, Mich.	P. V. Wagley	2,872	253	214	83	6	Varies	3	330.00
Traverse City State Hospital[2, 4]	Traverse City, Mich.	M. M. Nickels	3,345	150	260	72	6	....	3-5	300.00
Ypsilanti State Hospital[2, 4]	Ypsilanti, Mich.	O. R. Yoder	4,130	639	266	63	6	....	1-2	....
Minneapolis General Hospital★[1, 4, 7]	Minneapolis	J. C. Michael	......	......	...	...	1	1/1, 7/1	1-3	115.00
University Hospitals★[3, 4]	Minneapolis	D. W. Hastings	286	......	...	...	20	7/1	1-3	115.00
†Rochester State Hospital[1]	Rochester, Minn.	M. C. Petersen	2,232	......	272	108	4	Varies	1	150.00
Mayo Foundation[3]	Rochester, Minn.	H. W. Woltman	(See Neurology; also page 89)							
St. Peter State Hospital[2]	St. Peter, Minn.	G. H. Freeman	2,907	......	255	43	1	....	1-2	75.00
State Hospital No. 1[2, 4]	Fulton, Mo.	W. J. Cremer	2,502	......	267	34	4	7/1	1-3	150.00
Kansas City General Hospital No. 1★[1, 7]	Kansas City, Mo.	M. L. Bills	292	1,265	38	12	1	7/1	1-3	50.00
State Hospital No. 2[2]	St. Joseph, Mo.	G. W. Forman	2,851	......	225	2	2	....	1-3	100.00
Barnes Hospital★[3, 4]	St. Louis	E. F. Gildea	488	5,932	3	3	13	7/1	1-3	25.00
City Sanitarium[2, 4]	St. Louis	L. H. Kohler	3,968	......	201	77	18	7/1	1-3	141.00
Homer G. Phillips Hospital★[2]	St. Louis	E. F. Gildea	(Included in Neurology;				1	7/1	1-2	50.00
St. Louis City Hospital★[3, 4]	St. Louis	T. Thale	2,342	144	108	37	9	7/1	1	95.00
St. Vincent's Sanitarium[1]	St. Louis	P. E. Kubitschek	577	......	22	4	2	7/1	1-2	200.00
Hastings State Hospital[2, 4]	Ingleside, Neb.	J. C. Nielsen	2,067	200	...	...	8	Varies	1-6	300.00
Norfolk State Hospital[2, 4]	Norfolk, Neb.	G. L. Sandritter	1,303	1,010	80	32	3	Varies	1-3	300.00
†Lutheran Hospital[1, 4]	Omaha	G. A. Young, Sr.	769	......	3	2	1	7/1	1	150.00
New Hampshire State Hospital[2, 4]	Concord, N. H.	W. C. Brinegar	3,730	......	286	60	1	....	1	135.75
†Essex County Overbrook Hospital[1]	Cedar Grove, N. J.	S. W. Hamilton	3,329	......	302	32	4	....	1	....
New Jersey State Hospital[2, 4]	Greystone Park, N. J.	M. A. Curry	6,885	......	636	108	3	Varies	1-2	300.00c
New Jersey State Hospital[2, 4]	Marlboro, N. J.	J. B. Gordon	4,046	936	332	160	2	....	1-2	100.00
New Jersey State Hospital[2]	Trenton, N. J.	J. B. Spradley	4,287	......	301	44	5	....	1	100.00
Albany Hospital★[3, 4, 7]	Albany, N. Y.	S. E. Barrera	1,324	967	23	14	4	7/1	1-3	41.67
†Matteawan State Hospital[1]	Beacon, N. Y.	J. F. McNeill	1,755	......	41	6	1	Varies	1	274.50
Hillside Hospital[2, 4]	Bellerose, N. Y.	J. S. A. Miller	404	575	2	1	7	....	2	150.00
Binghamton State Hospital[2, 4]	Binghamton, N. Y.	H. S. Gregory	3,331	......	235	68	3	....	1-2	....
Brooklyn State Hospital[3, 4]	Brooklyn	C. H. Bellinger	5,307	5,976	668	68	16	....	3	274.50
†King County Hospital★[1]	Brooklyn	H. Potter	4,423	......	152	14	6	7/1	1	100.00
Buffalo State Hospital[2, 4]	Buffalo	C. Fletcher	3,565	14	230	38	2	Varies	1	250.00
Edward J. Meyer Memorial Hospital★[2, 4]	Buffalo	L. A. Osborn	1,937	695	89	37	3	....	3	100.00
Central Islip State Hospital[3, 4]	Central Islip, N. Y.	D. Corcoran	9,270	2,584	542	143	8	....	1-3	208.33
Gowanda State Homeopathic Hospital[2, 4]	Helmuth, N. Y.	R. W. Bohn	3,549	......	204	57	2	....	1-2	....
†Pinewood Sanitarium[1]	Katonah, N. Y.	L. Wender	239	......	2	...	1	1/1	1	175.00
Kings Park State Hospital[2]	Kings Park, N. Y.	A. E. Soper	8,187	3,156	436	77	11	....	1-2	....
†River Crest Sanitarium[1]	Long Island City, N. Y.	J. C. Kindred	361b	......	...	...	3	9/1	1-2	150.00
Marcy State Hospital[2]	Marcy, N. Y.	N. Bigelow	3,176	......	268	21	4	....	1	....
Middletown State Homeopathic Hosp.[2, 4]	Middletown, N. Y.	W. A. Schmitz	3,757	557	222	71	6	Varies	1	275.00
Bellevue Hospital, Div. III—N. Y. Univ.★[3, 4]	New York City	S. B. Wortis	20,000b	10,000b	...	...	32	7/1	1+	70.00
Manhattan State Hospital[2, 4]	New York City	J. H. Travis	6,224	......	1,029	216	4	....	1-2	208.33
†Mount Sinai Hospital★[4]	New York City	M. R. Kaufman	......	......	...	...	2	1/1, 7/1	1-2	50.00
New York Hospital★[3, 4]	New York City	O. Diethelm	282	6,502	2	...	12	1/7	1-5	50.00
New York State Psychiatric Institute and Hospital[3, 4]	New York City	I. H. MacKinnon	366	1,030	1	...	22	....	1-3	....
St. Lawrence State Hospital[2, 4]	Ogdensburg, N. Y.	J. A. Pritchard	2,603	......	140	1	4	....	1-2	....
Rockland State Hospital[2, 4]	Orangeburg, N. Y.	R. E. Blaisdell	7,795	......	384	122	8	Varies	1-2	208.66
†Stony Lodge Sanitarium[1]	Ossining, N. Y.	B. C. Glueck, Jr.	118	......	5	...	2	1/1, 7/1	1-3	200.00
Hudson River State Hospital[2, 4]	Poughkeepsie, N. Y.	W. C. Groom	5,518	509	437	72	2	Varies	1-2	....
Creedmore State Hospital[2]	Queens Village, N. Y.	H. A. LaBurt	7,057	3,629	512	69	9	....	1-2	225.00
Rochester State Hospital[2, 4]	Rochester, N. Y.	J. L. Van DeMark	3,843	2,085	368	43	2	....	1-2	275.00
Strong Memorial—Rochester Municipal Hospitals★[2, 4]	Rochester, N. Y.	J. Romano	310	1,480	3	...	8	7/1	1-3	....
Syracuse Psychopathic Hospital[2, 4]	Syracuse, N. Y.	M. F. Brew	738	974	14	5	3	7/1, 10/1	1-2	274.50
Utica State Hospital[2, 4]	Utica, N. Y.	A. W. Pense	2,342	2,473	225	14	2	....	1-2	....
[illegible]★[2, 4]	Valhalla, N. Y.	M. Hoiland	1,375	1,493	46	23	5	1/1, 7/1	1-3	122.50
[illegible]	W. Brentwood, N. Y.	H. H. Worthing	9,661	3,704	578	173	20	Varies	1	208.33
[illegible] Div.[3, 4]	White Plains, N. Y.	J. H. Wall	667	......	9	...	9	1/1	1-3	125.00
†[illegible]	Willard, N. Y.	K. Keill	3,382	......	237	39	5	Varies	2	225.00
[illegible]	Wingdale, N. Y.	A. M. Stanley	5,266	1,101	278	96	5	Varies	2	....
[illegible]	Durham, N. C.	R. S. Lyman	245	1,492	1	1	19	7/1	1	....
†North Carolina Baptist Hospital★[2]	Winston-Salem, N. C.	L. J. Thompson	367	600	...	...	5	1/1, 7/1	1-3	75.00
†Christ Hospital★[1]	Cincinnati	H. D. Fabing	......	......	...	...	1	7/1	1	100.00
Cincinnati General Hospital★[2, 4]	Cincinnati	M. Levine	1,084	626	13	5	14	7/1	1-2	....
Longview State Hospital[2, 4]	Cincinnati	D. Goldman	3,654	......	233	71	3	7/1	1	....
Cleveland State Receiving Hospital[3]	Cleveland	R. E. Bennett	842	......	44	24	12	7/1	1-3	126.00
†Cleveland Clinic Foundation Hospital[2]	Cleveland	L. J. Karnosh	(See Neurology)		...	...	2	7/1	1-2	100.00
†Cleveland State Hospital[1]	Cleveland	E. H. Crawfis	3,695	......	170	40	2	7/1	1-2	200.00
†University Hospitals★[2]	Cleveland	D. Bond	1,342	2,257	...	...	5	7/1	1+	25.00
Columbus State Hospital[2]	Columbus, Ohio	J. F. Bateman	3,050	3,100	189	81	4	Varies	1-3	233.33
[illegible]	Messillon, Ohio	A. G. Hyde	3,390	782	289	66	3	1/1	1	100.00
[illegible]	Worthington, Ohio	G. T. Harding	458	2,547	9	...	3	7/1	1-3	150.00
[illegible] pital[1]	Norman, Okla.	D. W. Griffin	4,627	150	264	18	2	....	1	200.00
[illegible]	Salem, Ore.	J. C. Evans	4,220	......	340	27	2	....	1-3	....
[illegible]	Allentown, Pa.	H. F. Hoffman	2,890	522	144	7	4	9/1	2-3	241.67
[illegible]	Danville, Pa.	V. J. Cassone	2,830	1,153	146	18	3	....	1-2	....
[illegible]	Harrisburg, Pa.	H. K. Petry	2,950	479	184	56	4	Varies	1	275.00
[illegible]	Norristown, Pa.	A. P. Noyes	4,973	......	350	80	13	Varies	1-3	325.00
[illegible]	Philadelphia	T. H. Dehne	479	1,252	21	12	4	Varies	1-2	200.00
Institute of th [illegible] 4	Philadelphia	L. H. Smith	312	......	...	...	14	7/1	1-2	100.00
Jefferson Medi [illegible]	Philadelphia	....	25	2,348	...	...	1	....	1	....
Pennsylvania [illegible] Mental and Nervous Diseases[3, 4]	Philadelphia	L. H. Smith	574	......	17	6	10	7/1	1-2	100.00
Philadelphia General Hospital★[2, 4]	Philadelphia	....	2,865	......	146	...	3	....	1-3	70.00
Philadelphia Psychiatric Hospital[2, 4]	Philadelphia	N. W. Winkelman	438	184	1	...	6	7/1	1-2	100.00
Philadelphia State Hospital[2, 4]	Philadelphia	E. L. Sielke	6,606	......	317	58	6	Varies	1-2	....
Temple University Hospital★[2, 4]	Philadelphia	O. S. English	......	2,034	...	...	2	7/1	3	50.00
St. Francis Hospital★[2, 4]	Pittsburgh	H. L. Mitchell and C. H. Henninger	3,089	362	91	15	4	7/1	3	110.00
Western State Psychiatric Institute and Clinic[2, 4]	Pittsburgh	R. A. Clark	320	......	8	3	12	7/1	1-2	175.00
Warran State Hospital[2]	Warren, Pa.	R. H. Israel	3,310	......	...	...	8	7/1	1-5	225.00
†Woodville State Hospital[2]	Woodville, Pa.	R. H. Phifer	2,845	......	141	...	4	7/1, 9/1	2	147.50
State Hospital for Mental Diseases[2, 4]	Howard, R. I.	J. F. Regan	3,772	602	433	73	4	Varies	1-3	333.33
Butler Hospital[1, 4]	Providence, R. I.	A. H. Ruggles	360	2,999	23	8	6	Varies	1-2	....
Charles V. Chapin Hospital[1, 4]	Providence, R. I.	T. L. Greason	838	713	14	7	2	....	1	172.50
†Beverly Hills Sanitarium[1]	Dallas, Texas	S. Weisz	851	104	20	...	4	7/1	1	200.00

Numerical and other references will be found on page 89

22. PSYCHIATRY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[8]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
†Timberlawn Sanitarium[1]	Dallas, Texas	G. F. Witt	401	......	3	...	5	....	1-3	$300.00
University of Texas Medical Branch										
†Galveston State Psychopathic Hospital[3]	Galveston, Texas	J. R. Ewalt	(Included in Neurology)				4	9/1	1-3	200.00
John Sealy Hospital★[2, 4]	Galveston, Texas	T. H. Harris	911	2,708	8	2	6	....	1-3	50.00
†Vermont State Hospital[1, 4]	Waterbury, Vt.	R. A. Chittick	1,501	......	128	39	2	Varies	1-3	100.00
University of Virginia Hospital★[2, 4]	Charlottesville, Va	D. C. Wilson	....	....	..	..	6	7/1	1-3	75.00
Medical College of Virginia, Hosp. Div.★[1]	Richmond, Va	R. F. Gayle	507	2,388	6	2	3	7/1	1-3	46.50
Western State Hospital[1, 4]	Ft. Steilacoom, Wash.	R. H. Rea	3,643	..	331	161	6	....	1-3	....
Eastern State Hospital[2, 4]	Medical Lake, Wash	H. A. Perry	2,597	286	201	5	6	4/1, 7/1	1-2	275.00
Northern State Hospital[2, 4]	Sedro Woolley, Wash.	F. E. Shovlain	2,100	......	...	...	2	7/1	2-3	370.00
State of Wisconsin General Hospital★[1, 4, 7]	Madison, Wis.	M. G. Masten	..	....	...	..	2	7/1	3	25.00
Milwaukee County Hosp. for Mental Dis.[2, 4]	Milwaukee	M. Kasak	1,674	1,237	18	8	9	1/1, 7/1	1-3	50.00
Milwaukee Sanitarium[2, 4]	Wauwatosa, Wis	J. A. Kindwall	512	....	3	3	2	....	1-3	......
Queen's Hospital★[2, 4]	Honolulu, Hawaii	R. D. Kepner	1,061	....	2	1	2	1/1, 7/1	1-2	100.00

23. PULMONARY DISEASES

The following services are approved by the Council and the American Board of Internal Medicine

Hospitals, 116, Assistant Residencies and Residencies, 418

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[8]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Army										
†Fitzsimons General Hospital★	Denver	C. W. Tempel	1,602	333	44	41	6	1/1	1-3	n
Veterans Administration										
†Veterans Admin. Hospital	San Fernando	W. B. Brown	2,125	2,458	73	21	1	....	1-3	$275.00
†Veterans Admin. Hospital	Van Nuys, Calif	A. E. Landy	1,020	2,439	89	79	8	1/1, 7/1	1-3	275.00
†Veterans Admin. Hospital	Hines, Ill	A. Shamaskin	294	1,008	113	28	1	....	1-3	275.00
†Veterans Admin. Hospital	Alexandria, La	I. Epstein	890	....	.	.	6	....	1-3	275.00
†Veterans Admin. Hospital	Rutland Heights, Mass	J. E. Keirans	744	......	103	19	1	....	1-3	275.00
†Veterans Admin. Hospital	Excelsior Springs, Mo	P. C. Bruce	633		61	34	4	....	1-3	275.00
†Veterans Admin. Hospital	Oteen, N C	D. B. MacCallum	2,038	1,443	269	68	1	....	1-3	275.00
†Veterans Admin. Hospital[1]	Brecksville, Ohio	W. S. Schwartz	501	811	30	8	2	....	1-3	275.00
Veterans Admin. Hospital[1]	McKinney, Texas	F. Reichsman	326	......	20	12	1	....	1-3	275.00
†Veterans Admin. Hospital	Walla Walla, Wash	W. G. Lewis	1,342	......	72	43	1	....	1-3	275.00
Nonfederal										
Los Angeles Sanatorium[4]	Duarte, Calif	J. Segal	304	1,537	39	18	5	....	1	......
Arroyo-Del Valle Sanatorium	Livermore, Calif	C. Bush	494	682	44	1	1	7/1	1	130.00
Barlow Sanatorium[4]	Los Angeles	H. W. Bosworth	182	1,274	2	1	2	7/1	1	100.00
Los Angeles County Hospital★[4]	Los Angeles	C. R. Howson	1,275	1,881	414	88	3	Varies	1	......
Pottenger Sanatorium and Clinic[4]	Monrovia, Calif	F. M. Pottenger	207	770	8	2	1	....	1	......
Bret Harte Sanatorium	Murphys, Calif	E. P. Smart	339	3,919	15	3	1	7/1	1-2	364.00
Olive View Sanatorium[4]	Olive View, Calif	C. E. Babcock	1,741	.....	86	36	15	Varies	1	375.00
San Diego County General Hospital★	San Diego, Calif	V. J. Wyborney	311	2,400	47	9	1	7/1	1	187.00
San Francisco Hospital★[4]	San Francisco	F. M. Faber	851	......	210	14	5	....	1	175.00
Santa Clara County Hospital★	San Jose, Calif	C. Ianne	.....	......	.	...	2	....	1-3	180.00
Fairmont Hospital of Alameda County[4]	San Leandro, Calif.	J. L. Eaton	164	1,857	57	19	1	....	1-3	......
National Jewish Hospital[4]	Denver	A. Hurst	445	......	20	15	8	7/1	1-3	100.00
University of Colorado Medical Center[2, 5]										
Denver General Hospital★	Denver	J. J. Waring	126	5,840	34	9	1	1/1	1	50.00
Sanatorium of the Jewish Consumptives' Relief Society	Spivak, Colo	M. Chernyk	323	.....	30	9	4	....	1	......
Undercliff Sanatorium[4]	Meriden, Conn	C. B. Gibson	384	3,492	47	9	1	7/1	1-2	288.66
Norwich State Tuberculosis Sanatorium (Uncas-on-Thames)	Norwich, Conn	W. H. Weidman	666	3,389	76	26	1	Varies	1	300.00
Laurel Heights State Tuberculosis Sanatorium	Shelton, Conn	E. J. Lynch	474	3,650	36	8	2	7/1	1	170.00
Gaylord Farm Sanatorium[4]	Wallingford, Conn	D. R. Lyman	295	3,000	3	1	2	Varies	1	100.00
[illegible]	Washington, D.C	H. M. Payne	130	5,836	46	12	2	7/1	1-2	......
[illegible] D.)	Washington, D. C.	D. L. Finucane	985	......	167	70	12	Varies	1-5	222.40
[illegible]	Rome, Ga	J. L. Chesnut	1,142	......	153	37	2	1/1	1-2	325.00
[illegible] Tuberculosis Sanitarium	Chicago	K. J. Henrichsen	512	......	411	148	2	....	1-3	......
University of Chicago Clinics★	Chicago	R. G. Bloch	.....	2,233	...	...	1	7/1	1-2	25.00
Macon County Tuberculosis Sanatorium[4]	Decatur, Ill	D. F. Loewen	119	7,953	8	5	1	1/1	1	250.00
Pleasant View Sanatorium	East St. Louis, Ill	W. S. Broker	212	7,548	33	...	1	7/1	1-2	150.00
Peoria Municipal Tuberculosis Sanatorium[4]	Peoria, Ill	D. Morse	180	3,577	26	11	1	7/1	1	175.00
Rockford Municipal Tuberculosis Sanatorium[4]	Rockford, Ill	W. J. Bryan	238	4,012	27	6	1	....	1-3	250.00
Lake County Tuberculosis Sanatorium[4]	Waukegan, Ill	C. K. Petter	282	3,692	36	17	1	1/1, 7/1	1-2	......
Boehne Tuberculosis Hospital[4]	Evansville, Ind.	P. D. Crimm	286	966	52	51	1	Varies	1-2	......
Indianapolis General Hospital★	Indianapolis	D. J. White	211	2,615	55	11	1	7/1	1	100.00
Sunnyside Sanatorium	Indianapolis	F. L. Jennings	407	277	52	13	2	Varies	1	175.00
Healthwin Hospital	South Bend, Ind	E. W. Custer	363	656	46	7	1	1/1	1	200.00
State Sanatorium[4]	Oakdale, Iowa	W. M. Spear	703	2,177	83	7	2	....	1	100.00
†Charity Hospital of Louisiana★[4]	New Orleans, La	......	129	8,482	122	9	5	7/1	1-2	25.00
Western Maine Sanatorium[4]	Greenwood Mt., Me	L. Adams	151	328	28	11	1	Varies	1	......
Baltimore City Hospital★[4]	Baltimore	H. V. Langeluttig	713	......	164	68	2	7/1	1	35.00
Boston Sanatorium	Boston	J. A. Foley	991	......	201	26	5	Varies	1	150.00
Rutland State Sanatorium[4]	Rutland, Mass	P. Dufault	415	......	51	11	1	Varies	1	......
Norfolk County Hospital	S. Braintree, Mass	N. R. Pillsbury	187	4,003	17	3	2	7/1	1-2	220.00
Middlesex County Sanatorium[4]	Waltham, Mass	F. P. Dawson	553	18,598	73	28	2	....	1-2	220.00
Westfield State Sanatorium[4]	Westfield, Mass.	D. A. Martin	303	6,176	43	...	5	7/1	1-2	255.00
Belmont Hospital	Worcester, Mass.	M. S. Bacastow	348	3,118	37	15	2	....	1	155.00
University Hospital★[4]	Ann Arbor, Mich	D. Jenkins	.....	......	...	...	2	7/1	1-5	111.40
American Legion Hospital	Battle Creek, Mich	L. C. Manni	492	786	51	...	2	....	1	......
Herman Kiefer Hospital[4]	Detroit	P. T. Chapman	1,746	41,895	323	128	11	7/1	1+	350.00
[illegible]	[illegible]	E. W. Laboe	690	2,602	58	2	8	Varies	1	300.00
[illegible]	[illegible]	C. J. Stringer	397	17,970	18	4	3	7/1	1	200.00
[illegible]	[illegible]	J. R. Acocks	139	1,678	11	1	1	7/1	1-3	150.00
[illegible] Sanatorium[4]	[illegible]	W. L. Howard	1,530	......	196	74	3	Varies	1	......
Oakland County Tuberculosis Hospital[1]	Pontiac, Mich	C. P. Mehas	372	6,627	43	14	4	1/1	1-3	250.00
Nopeming Sanatorium[4]	[illegible]	G. A. Hedberg	494	......	27	12	2	7/1	1	......
Glen Lake Sanatorium[4]	[illegible]	E. S. Mariette	1,026	23,823	120	38	5	Varies	1	125.00
Mississippi State Tuberculosis Sanatorium	Sanatorium, Miss	H. Boswell	569	1,952	40	2	1	....	2-3	......
Kansas City Municipal Tuberculosis Hosp.	Kansas City, Mo	D. L. Coffman	540	......	59	20	1	....	1	......
Robert Koch Hospital[4]	Koch, Mo	G. D. Kettelkamp	891	......	162	78	9	Varies	1-2	......

Numerical and other references will be found on page 89

23. PULMONARY DISEASES—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[b]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Homer G. Phillips Hospital★	St. Louis	A. Goldman	245	......	62	8	1	7/1	1	$ 50.00
Mount St. Rose Sanatorium	St. Louis	M. Ohmoto	341	......	40	19	1	....	1	......
New Jersey Sanatorium for Tuberculous Diseases	Glen Gardner, N. J.	J. A. Smith	579	1,763	17	4	7	....	1	300.00
Berthold S. Pollak Hosp. for Chest Diseases	*Jersey City, N. J.*	*B. S. Pollack Jr.*	*1,007[b]*	*11,710[b]*	*155*	*23*	*8*	....	*1*	......
Essex County Sanatorium[4]	Verona, N. J.	A. M. Hicks	679	2,425	188	28	8	Varies	1	......
Albany Hospital★[4]	Albany, N. Y.	R. J. Erickson	230	1,441	57	37	1	7/1	1	41.66
Montefiore Hospital Country Sanatorium[4]	Bedford Hills, N. Y.	N. Pinner	.....	......	...	...	4	....	1	......
Kings County Hospital★	Brooklyn	C. E. Hamilton	974	4,768	189	16	3	7/1	1	100.00
Kingston Avenue Hospital	Brooklyn	F. Murray	337	......	47	...	3	7/1	1	125.00
Edward J. Meyer Memorial Hospital★[4]	Buffalo	H. G. Dayman	780	1,103	185	76	1	7/1	1-3	100.00
Nassau County Tuberculosis Hospital[4]	Farmingdale, N. Y.	J. C. Walsh	496	8,552	56	24	4	1/1	1-2	150.00
Herman M. Biggs Memorial Hospital[4]	Ithaca, N. Y.	N. S. Lincoln	438	7,824	27	11	5	....	1	......
Triboro Hospital[4]	Jamaica, N. Y.	R. H. Bennett	850	9,400	119	26	14	....	1	70.00
†[illegible]	Lockport, N.Y.	A. N. Aitken	172	3,741	28	23	3	7/1	1	200.00
[illegible]tal[1]	Mount Morris, N. Y.	A. M. Stokes	224	6,799	27	17	4	....	1	......
[illegible] Univ.★[4, 19]	New York City	J. B. Amberson	3,007[b]	11,069[b]	389	98	14	1/1, 7/1	1	70.00
[illegible]★	New York City	G. Thorburn	90	......	2	2	1	Varies	1-2	50.00
[illegible]★[4]	New York City	G. G. Ornstein	543	2,444	216	26	5	Varies	1	120.00
[illegible]ases★[4]	New York City	....	269	1,089	38	19	3	1/1, 7/1	1	50.00
[illegible]	New York City	J. F. McCarthy	686	......	80	10	4	....	1	......
Homer Folks Tuberculosis Hospital[1]	Oneonta, N. Y.	R. Horton	439	7,595	27	6	2	....	1	300.00
Municipal Sanatorium[4]	Otisville, N. Y.	J. S. Edlin	1,156	......	...	...	7	1/1	1	......
Ray Brook State Tuberculosis Hospital	Ray Brook, N. Y.	H. A. Bray	632	4,661	30	13	4	....	1	......
Iola-Monroe County Tuberculosis Sanat.[4]	Rochester, N. Y.	E. Bridge	640	18,692	78	33	6	7/1	1	200.00
Schenectady County Tuberculosis Hospital[4]	Schenectady, N. Y.	J. M. Blake	227	3,147	21	3	2	7/1	1	150.00
Sea View Hospital[4]	Staten Island, N. Y.	G. G. Ornstein	2,358	......	523	78	25	1/1, 7/1	1	120.00
Trudeau Sanatorium[4]	Trudeau, N. Y.	E. N. Packard	304	......	2	1	3	Varies	1	25.00
Grasslands Hospital★[4]	Valhalla, N. Y.	W. G. Childress	544	1,743	78	35	8	1/1, 7/1	1-3	122.50
Jefferson County Sanatorium[4]	Watertown, N. Y.	S. E. Simpson	407	2,493	68	37	1	10/1	1-3	75.00
Dunham Hospital[4]	Cincinnati	H. J. Nimitz	823	5,199	146	49	6	....	1	......
City Hospital★[4]	Cleveland	R. C. McKay	479	666	206	79	2	7/1	1	100.00
Franklin County Tuberculosis Hospital[4]	Columbus, Ohio	W. L. Potts	537	547	84	41	7	Varies	1+	300.00
Sunny Acres, Cuyahoga County Tuberculosis Hospital[4]	Warrensville, Ohio	R. H. Browning	689	31,652	39	14	6	7/1	1+	250.00
Eagleville Sanatorium for Consumptives[4]	Eagleville, Pa.	A. J. Cohen	365	6,003	18	...	2	....	1	......
Germantown Dispensary and Hospital★	Philadelphia	F. M. McPhedran	....	......	...	...	1	7/1	1-2	50.00
Jefferson Medical College Hospital★	Philadelphia	....	(White Haven Unit)			·	2	....	1	......
†Philadelphia General Hospital★[4]	Philadelphia	....	1,565	......	496	...	1	....	1-3	70.00
†City Tuberculosis Hospital	Pittsburgh	G. E. Martin	442	1,782	163	...	4	....	1-3	234.50
†Tuberculosis League Hospital	Pittsburgh	C. H. Marcy	186	19,175	18	3	2	7/1	1-2	200.00
State Sanatorium[4]	Wallum Lake, R. I.	U. E. Zambarano	631	4,022	75	11	8	Varies	1	......
Pine Breeze Sanatorium	Chattanooga, Tenn.	J. L. Hamilton	359	416	47	11	1	1/1	1	......
Davidson County Tuberculosis Hospital	Nashville, Tenn.	R. R. Crowe	523	......	85	18	1	7/1	1-3	200.00
†Oakville Memorial Sanatorium[4]	Oakville, Tenn.	F. H. Alley	778	......	97	29	2	7/1	1-3	150.00
†Woodlawn Hospital	Dallas, Texas	E. Mendenhall	210	332	65	14	1	....	1	......
Woodmen of the World Mem. Hospital	San Antonio, Texas	R. G. McCorkle	217	......	10	4	1	1/1	1	......
†Firland Sanatorium[4]	Seattle	R. Davies	700	......	...	...	2	7/1	1-2	150.00
Hopemont Sanitarium[4]	Hopemont, W. Va.	D. Salkin	753	2,100	47	19	4	....	1-3	200.00
Muirdale Sanatorium[4]	Milwaukee	A. V. Cadden	928	......	141	27	2	Varies	1-2	......
Wisconsin State Sanatorium[4]	Statesan, Wis.	R. H. Schmidt, Jr.	222	......	12	7	2	Varies	1	250.00
†Leahi Hospital[4]	Honolulu, Hawaii	H. H. Walker	974	2,320	87	26	13	Varies	1½+	220.00

24. RADIOLOGY

The following services are approved by the Council and the American Board of Radiology
(See footnotes 1, 2 and 3 for number of years credit)

Hospitals, 336; Assistant Residencies and Residencies, 833

Name of Hospital	Location	Chief of Service	Type of Training[12]	Roentgenographic Examinations	X-Ray Treatments	Radium Treatments	Autopsy Percentage	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Army											
†Army and Navy General Hospital[1]	Hot Spgs. Nat. Pk., Ark.	H. C. Harrell	Rad.	12,962	3,729	29	84	2	1/1	1	n
Letterman General Hospital★[2]	San Francisco	L. R. Moore	Rad.	40,139	6,789	37	96	5	1/1	1-2	n
†Fitzsimons General Hospital★[1]	Denver	S. Kellogg	Roent.	51,467	4,637	2	83	3	1/1	1-3	n
Walter Reed General Hospital★[3]	Washington, D. C.	H. I. Amory	Rad.	57,961	12,289	373	83	6	1/1	1-3	n
†Oliver General Hospital★[1]	Augusta, Ga.	A. B. Ramsey	D. R.	36,794	1,005	....	81	4	1/1	1	n
[illegible]	Battle Creek, Mich.	E. A. Lodmell	Roent.	44,897	3,283	....	100	2	1/1, 7/1	1-2	n
[illegible]	San Antonio, Texas	A. J. Ackerman	Roent.	65,235	3,500	7	69	2	1/1	1-2	n
[illegible]	Long Beach, Calif.	R. C. Douthat and C. Gartenlaub	Roent.	17,716	3,052	82	90	3	Varies	3	n
†U. S. Naval Hospital★[1]	Oakland, Calif.	K. H. Vinnedge	Roent.	22,537	4,446	....	48	1	Varies	1	n
†U. S. Naval Hospital★[3]	San Diego, Calif.	H. At Keener	Rad.	37,693	6,694	131	75	2	Varies	1	n
†U. S. Naval Hospital★[1]	Great Lakes, Ill.	J. P. Wood	Roent.	18,420	1,025	....	94	2	Varies	1	n
†U. S. Naval Hospital★[1]	Bethesda, Md.	G. M. Hutto	Roent.	16,279	2,787	....	81	1	Varies	1	n
†U. S. Naval Hospital★[1]	Chelsea, Mass.	G. F. Fraser	Roent.	23,328	2,588	....	93	1	Varies	1-2	n
U. S. Naval Hospital★[2]	*St. Albans, N. Y.*	*M. M. Hardisty*	*Roent.*	*26,455*	*348*	....	*67*	*1*	*10/1*	*1-3*	n
†U. S. Naval Hospital★[1]	Philadelphia	A. H. Staderman	Roent.	39,186	3,241	....	54	3	Varies	1	n
United States Public Health Service											
†U. S. Marine Hospital★[1]	Baltimore	J. H. R. Booth	Ther.-Rad.	16,594	6,070	125	76	2	7/1	1-3	n
†U. S. Marine Hospital★[1]	Stapleton, S. I., N. Y.	W. M. Sennott	Roent.	36,454	2,407	....	57	3	7/1	1-2	n
Veterans Administration											
Veterans Administration Center[3]	Los Angeles, Calif.	C. W. McClanahan	Rad.	59,383	10,781	328	76	3	2/1, 8/1	2-3	$275.00
†Veterans Administration Hospital[1]	San Francisco	W. W. Saunders	D. R.	18,895	256	....	75	2	7/1	1-3	275.00
†Veterans Admin. Hospital[1]	Van Nuys, Calif.	E. P. Bugbee	D. R.	32,635	235	....	80	4	1/1, 7/1	3	275.00
†Veterans Admin. Hospital[1]	Fort Logan, Colo.	C. F. Ingersoll	D. R.	......	......	....	85	3	....	1-3	275.00
Veterans Admin. Hospital[2]	Washington, D. C.	S. R. Bersack	Rad.	15,166	2,686	26	79	3	7/1	1-3	275.00
†Veterans Admin. Hospital[1]	Chamblee, Ga.	W. C. A. Sternbergh	Roent.	14,834	9,617	4	35	3	7/1	1-3	275.00
Veterans Admin. Hospital[3]	Hines, Ill.	H. Slobodin	Rad.	67,425	30,957	198	46	6	....	1-3	275.00
†Veterans Admin. Hospital[1]	Indianapolis	R. T. Levin	D. R.	9,103	......	....	62	3	....	1-5	275.00
†Veterans Admin. Hospital[1]	Wadsworth, Kan.	....	D. R.	46,494	1,053	6	91	6	Varies	1-3	275.00
†Veterans Admin. Hospital[1]	Louisville, Ky.	D. Shapiro	D. R.	22,270	89	....	75	2	7/1	1-3	275.00
†Veterans Admin. Hospital[1]	New Orleans, La.	L. Raider	D. R.	14,831	488	....	78	4	7/1	1-3	275.00
†Veterans Admin. Hospital[1]	Fort Howard, Md.	J. T. Brackin, Jr.	D. R.	12,382	......	....	55	2	7/1	1-3	

Numerical and other references will be found on page 89

24. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Roentgenographic Examinations	X-Ray Treatments	Radium Treatments	Autopsy Percentage	Asst. Res. and Residencies Offered	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
†Veterans Admin. Hospital (West Roxbury)[8]	Boston	E. G. Wissing	D. R.	15,816		.	76	1	2/1	1-3	$275.00
†Veterans Admin. Hospital[8]	Dearborn, Mich.	P. H. Schiarr	D. R.	9,395	.		56	3	7/1	1-3	275.00
†Veterans Admin. Hospital[8]	Minneapolis, Minn.	L. C. Rigler and D. L. Fink	D. R.	18,661		.	69	3	......	1	275.00
†Veterans Admin. Hospital[8]	New York City	A. Shammel	Roent.	62,825	20,617	18	17	6	1/1, 7/1	1-3	275.00
†Veterans Admin. Hospital[8]	Cleveland	M. D. Sachs	D. R.	28,341	1,345	5	55	4	7/1	1-3	275.00
†Veterans Admin. Hospital[8]	Portland, Oregon	M. D. Hyman	Roent.	20,523	3,365	6	78	1	7/1	1-4	275.00
†Veterans Admin. Hospital[8]	Aspinwall, Pa.	G. B. Alexander	D. R.	20,191	.	.	51	5	7/1	1-3	275.00
†Veterans Admin. Hospital[8]	Memphis, Tenn.	W. H. Mendel	D. R.	31,281	1,848	15	73	4	7/1	1-3	275.00
†Veterans Admin. Hospital[8]	Nashville, Tenn.	K. R. Deibert	D. R.	6,675b	211b	..	68	2	7/1	1-3	275.00
†Veterans Admin. Hospital[8]	Dallas, Texas	C. Martin	Rad.	12,400	682	9	50	2	7/1	1-3	275.00
†Veterans Admin. Hospital[8]	McKinney, Texas	R. K. Lovell	D. R.	11,976	1,223	...	73	2	......	1-3	275.00
†Veterans Admin. Hospital[8]	Temple, Texas	F. F. Zimmerman	D. R.	15,628	...	....	70	1	7/1	1-3	275.00
†Veterans Admin. Hospital[8]	Salt Lake City	H. H. Lerner and H. L. Plenk	D. R.	7,955	25	...	91	2	1/1, 7/1	1-3	275.00
†Veterans Admin. Hospital[8]	Milwaukee, Wis.	T. J. Pfeffer	D. R.	29,568	.	.	53	3	1/1, 7/1	1-3	275.00
Nonfederal											
†Jefferson-Hillman Hospitals★[1,4]	Birmingham, Ala.	M. Barfield Carter	Rad.	19,181	9,772	127	37	2	7/1	1	50.00
†Norwood Hospital★[1]	Birmingham, Ala.	L. E. Sorrell	Roent.	2,528	4,591	51	18	1	Varies	1	.
†St. Monica's Hospital★[1]	Phoenix, Ariz.	J. Foster	Rad.	5,025	412	10	40	1	7/1	1	150.00
†Tucson Medical Center[1]	Tucson, Ariz.	A. J. Present	Rad.	2,703	47	8	51	1	7/1	1	200.00
University Hospital★[3]	Little Rock, Ark.	R. A. Blanchard	Roent.	7,702	3,809	17	45	2	7/1	1-2	75.00
†San Joaquin General Hospital★[1]	French Camp, Calif.	A. M. Cove	Roent.	12,879	3,030	38	65	1	7/1	1-3	200.00
†Cedars of Lebanon Hospital★[1]	Los Angeles	E. Freedman and C. Emery	Rad.	14,550	1,799	72	42	2	7/1	1	50.00
†Hospital of the Good Samaritan★[1]	Los Angeles	R. G. Taylor	Rad.	14,533	1,155	101	31	1	7/1	1	200.00
Los Angeles County Hospital★[3,4]	Los Angeles	R. A. Carter	Rad.	75,591	8,119	425	41	3	Varies	3	165.00
†Queen of Angels Hospital★[1]	Los Angeles	L. S. Goin	Rad.	8,575	3,238	73	44	1	7/1	3	100.00
St. Vincent's Hospital[3]	Los Angeles	K. S. Davis	Rad.	9,013	1,869	28	52	1	7/1	3	
White Memorial Hospital★[3]	Los Angeles	W. L. Stilson	Rad.	11,758	8,210	261	60	3	......	1-3	147.33
Highland-Alameda County Hospital★[2]	Oakland, Calif.	H. H. Jensen	Rad.	9,877	1,851	11	16	2	......	1-3	130.00
†Permanente Foundation Hospital★[1,4]	Oakland, Calif.	O. Hatschek	Rad.	15,060	5,214	14	66	1	8/1	1	125.00
†Palo Alto Hospital[1]	Palo Alto, Calif.	R. A. Powers	D. R.	4,585	385	65	21	1	8/1	1-2	.
Collis P. and Howard Huntington Memorial Hospital★[2]	Pasadena, Calif.	J. F. Chapman and R. S. Harrison	Roent.	8,420	2,620	..	67	1	1/1	1-2	85.00
†Franklin Hospital★[1,4]	San Francisco	A. J. Williams	Roent.	10,162	2,817	3	50	2	......	1	100.00
Mount Zion Hospital★[1]	San Francisco	J. Levitin	Roent.	5,933	535	15	61	1	7/1	1	50.00
†St. Mary's Hospital★	San Francisco	C. S. Capp	Roent.	11,116	2,829	.	37	1	4/1	1	100.00
San Francisco Hospital★[2,4]	San Francisco	A. J. Williams	Rad.	62,630	3,511	60	30	4	......	1	200.00
Stanford University Hospital★[3,4]	San Francisco	F. Windholz	Rad.	16,170	8,211	169	57	4	7/1	1-2	50.00
University of California Hospital★[3,4]	San Francisco	R. S. Stone	Rad.	22,213	11,312	150	67	4	Varies	1	50.00
†Santa Clara County Hospital★[1]	San Jose, Calif.	T. N. Foster and J. Von Saltza	Roent.	5,166	251	3	46	1	7/1	1	......
†Santa Barbara Cottage Hospital★	Santa Barbara, Calif.	M. J. Geyman and H. J. Ullmann	D. R.	6,261	3,773	54	69	1	......	1	......
†St. John's Hospital★	Santa Monica, Calif.	J. C. Conti, Jr.	Rad.	3,593	546	7	38	1	......	1	50.00
†Presbyterian Hospital★[1]	Denver	K. D. A. Allen	Rad.	5,608b	1,805b	71b	58	1	......	3	....
†St. Luke's Hospital★[1]	Denver	W. P. Stampfli	Rad.	6,631	1,500	28	51	1	6/1	1	50.00
University of Colorado Medical Center Colorado General Hospital★[1,4]	Denver	E. A. Schmidt	Rad.	18,140	2,434	37	82	2	1/1, 7/1	1-3	75.00
Corwin Hospital★[2]	Pueblo, Colo.	G. A. Unfug	Roent.	7,365	2,463	.	61	1	7/1	1-3	75.00
†Bridgeport Hospital★[1]	Bridgeport, Conn.	B. M. Parmelee	Rad.	7,151	1,305	119	38	1	11/1	1	150.00
Hartford Hospital★[2,4,7]	Hartford, Conn.	D. J. Roberts	Rad.	15,700	8,188	60	55	2	7/1	1-3	50.00
Grace-New Haven Community Hospital Grace Unit★[1]	New Haven, Conn.	R. M. Lowman	Rad.	7,792	4,138	47	37	1	7/1	3	40.00
New Haven Unit (University Service)★[3,4]	New Haven, Conn.	H. Wilson	Rad.	25,192	4,132	36	59	3	7/1	1	40.00
†Hospital of St. Raphael★[1]	New Haven, Conn.	G. Brown	Roent.	7,641	1,016	12	31	2	7/1	1	75.00
†Waterbury Hospital★[1]	Waterbury, Conn.	J. L. Harvey	Rad.	8,215	1,477	52	40	1	7/1	3	100.00
†Delaware Hospital★[2]	Wilmington, Del.	W. W. Lattomus	D. R.	11,481	2,108	81	56	1	7/1	1	110.00
Doctors Hospital★[3]	Washington, D. C.	A. C. Christie	Rad.	1,700	810	69	74	3	7/1	3	125.00
†Gallinger Municipal Hospital★[1,4]	Washington, D. C.	H. R. Reed	Rad.	25,844	929	22	55	2	7/1	1-2	.
Garfield Memorial Hospital★[2,4]	Washington, D. C.	A. O. Hampton	Rad.	13,793	13,811	117	50	5	......	1-2	150.00
Georgetown University Hospital★[2]	Washington, D. C.	M. M. Copeland	Rad.	8,563	3,640	88	51	3	7/1	1-3	..
Sibley Memorial Hospital★[3,4]	Washington, D. C.	W. M. Clopton	Rad.	9,626	1,867	..	68	1	7/1	1-2	100.00
James M. Jackson Memorial Hospital★[2]	Miami, Fla.	T. M. Berman	Rad.	16,993	3,873	29	32	1	......	1	.
Grady Memorial Hospital★[3,4]	Atlanta, Ga.	H. S. Weens	Rad.	30,563	3,672	179	50	2	7/1	1	20.00
Piedmont Hospital★[3]	Atlanta, Ga.	G. Hrdlicka	Rad.	5,052	741	.	45	1	......	1	..
†University Hospital★[3,4]	Augusta, Ga.	L. P. Holmes	Rad.	18,935	4,937	327	25	1	7/1	1	40.00
†Emory University Hospital★[1]	Emory University, Ga.	Leigh	Rad.	7,720	5,260	141	46	2	7/1	1	50.00
†Alexian Brothers Hospital★[1]	Chicago	M. Indovina	Roent.	9,176	1,481	5	52	1	6/1	1	100.00
Augustana Hospital★[1]	Chicago	D. S. Beilin	Rad.	7,613	3,367	.	48	2	7/1	1-3	50.00
Cook County Hospital★[1,4]	Chicago	G. Landau	Rad.	135,727	21,510	116	23	4	1/1, 7/1	1	..
†Edgewater Hospital★[1]	Chicago	N. S. Zeitlin	Roent.	..	....	..	44	1	7/1	2-3	150.00
†Illinois Masonic Hospital★[1,4]	Chicago	J. H. Gilmore	Rad.	7,958	396	12	57	1	Varies	1	....
†Lutheran Deaconess Home and Hospital★[1]	Chicago	R. G. Willy	Roent.	12,221	334	20	42	1	......	1	.....
†Mercy Hospital—Loyola University Clinics★[1]	Chicago	W. W. Furey	Rad.	8,600	10,954	277	45	2	7/1	1	25.00
Michael Reese Hospital★[1,4]	Chicago	R. A. Arens and E. H. Ullmann	Rad.	43,856	16,000	3,000	67	5	......	1	50.00
Mount Sinai Hospital★[2,4]	Chicago	J. Arendt	Roent.	9,423	2,321	.	47	2	7/1	1-2	50.00
Passavant Memorial Hospital★[3,4]	Chicago	R. B. Lewis	Rad.	5,422b	1,054b	74	68	3	......	1	..
Presbyterian Hospital★[1]	Chicago	F. H. Squire	Rad.	23,780	5,370	108	66	3	7/1	1-3	25.00
Provident Hospital★[2,4]	Chicago	W. P. Quinn	Rad.	4,945	61,721	30	54	1	7/1	1-3	50.00
[illegible]	Chicago	D. L. Jenkinson	Rad.	11,460	2,400	.	69	1	......	1	.....
[illegible] Hospitals★[1,4]	Chicago	R. A. Harvey	Rad.	15,279	13,184	4,227	83	6	7/1	1-3	55.00
[illegible] Hospital★[1]	Chicago	B. C. Cushway	Rad.	7,869	3,477	235	30	1	2/1, 7/1	1-3	200.00
†St. Joseph Hospital★[1,4]	Chicago	W. E. Anspach	Roent.	6,813	1,706	29		2	......	1	.....
St. Luke's Hospital★[1,4]	Chicago	E. L. Jenkinson	Rad.	29,386	6,154	48	62	6	......	1-3	......
University of Chicago Clinics★[3]	Chicago	P. C. Hodges	Rad.	18,607	6,053	99	79	6	1/1, 7/1	1-3	25.00
Wesley Memorial Hospital★[2,4]	Chicago	E. E. Barth	Rad.	21,113	1,493	....	66	3	1/1, 7/1	1-4	25.00
†Woodlawn Hospital★[1,3]	Chicago	H. A. Olin	Roent.	3,439	717	15	59	1	1/1	1-3	.....
Evanston Hospital★[1]	Evanston, Ill.	R. G. Willy	Rad.	18,607	1,257	....	86	2	......	3	50.00
†St. Francis Hospital★[1]	Evanston, Ill.	A. C. Ledoux	Rad.	14,384	979	30	60	1	7/1	1	75.00
†Little Company of Mary Hospital★[1]	Evergreen Park, Ill.	W. W. Furey	D. R.	10,848	2,338	80	29	1	3/1	1	100.00
†Ryburn Memorial Hospital[1,19]	Ottawa, Ill.	B. J. Bailey	Ther. Rad.	1,820b	3,824b	125b	15	1	5/1	1	150.00
†Methodist Hospital of Central Illinois★[1]	Peoria, Ill.	F. H. Decker	Rad.	6,900	2,322	134	32	1	7/1	1	100.00
St. Francis Hospital★[2,4]	Peoria, Ill.	P. R. Dirkse	Rad.	12,196	3,796	6	52	1	7/1	1-2	150.00
†Clinic Hospital[1]	Bluffton, Ind.	L. Long	Rad.	19,060	3,261	19	51	1	7/1	1-3	100.00

Numerical and other references will be found on page 89

24. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training[12]	Roentgenographic Examinations	X-Ray Treatments	Radium Treatments	Autopsy Percentage	Asst. Res. and Residencies Offered[3]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
†St. Mary's Mercy Hospital★[1]	Gary, Ind.	C. P. Galanti	Roent.	6,147b	3,024b	....	23	1	7/1	2-3	$50.00
St. Marg	Hammond, Ind.	C. W. Rauschenbach	Roent.	5,450	930	16	26	3	1/1	3	175.00
Indianap	Indianapolis	L. A. Smith	Rad.	15,418	5,668	81	33	3	7/1	1-3	70.00
Indiana	Indianapolis	J. A. Campbell	Rad.	19,525	10,967	248	56	5	7/1	1-3	33.33
Methodist Hospital★[3, 4]	Indianapolis	H. C. Ochsner	Rad.	21,441	5,711	....	32	1	1/1	1-2	200.00
†St. Elizabeth Hospital★[1]	LaFayette, Ind.	D. C. McClelland	Rad.	......	......	....	26	1	6/1	1	100.00
†Ball Memorial Hospital★[1]	Muncie, Ind.	B. W. Stocking	Roent.	9,518	2,645	30	37	1	1/1, 7/1	1	100.00
Iowa Methodist Hospital★[3]	Des Moines, Iowa	T. A. Burcham	Rad.	7,089	748	19	71	1	7/1	1-3	75.00
University Hospitals★[3, 4]	Iowa City	H. D. Kerr	Rad.	34,288	15,432	14	63	11	7/1	1	50.00
University of Kansas Hospitals★[3, 4]	Kansas City, Kan.	G. M. Tice	Rad.	35,338	11,023	180	65	2	....	1-3	......
†Louisville General Hospital★[1]	Louisville, Ky.	E. L. Pirkey	Rad.	20,760	2,044	19	41	3	7/1	1	45.00
†St. Joseph Infirmary★[1]	Louisville, Ky.	S. E. Johnson	Rad.	9,337	6,384	136	43	2	7/1	1-3	66.67
Charity Hospital of Louisiana★[3, 4]	New Orleans	L. J. Menville	Rad.	120,021	54,068	474	49	8	7/1	1-3	25.00
†Foundation Hospital[1]	New Orleans	R. C. Boyer	Rad.	35,030	......	....	59	3	1/1	3	150.00
Southern Baptist Hospital★[3]	New Orleans	L. Bristow, Jr.	Rad.	567	4,054	125	34	3	7/1	1-3	150.00
Touro Infirmary★[3]	New Orleans	M. D. Teitelbaum	Roent.	12,264b	4,748b	....	54	1	7/1	1	17.50
Shreveport Charity Hospital★[3, 4]	Shreveport, La.	G. M. Riley	Rad.	8,950	8,699	89	45	2	7/1	1-3	60.00
†Baltimore City Hospital★[1, 4]	Baltimore	S. H. Macht	Rad.	16,350	710	7	58	2	7/1	1	35.00
Johns Hopkins Hospital★[3, 4]	Baltimore	R. H. Morgan	Rad.	63,000	10,193	290	72	4	....	1-3	......
†Sinai Hospital★[1]	Baltimore	M. Ostro	Roent.	9,706	1,649	....	58	2	7/1	1-2	25.00
†Union Memorial Hospital★[1]	Baltimore	W. B. Firor	Rad.	7,121	......	....	34	1	7/1	1	None
University Hospital★[2, 4]	Baltimore	W. L. Kilby	Rad.	26,511	3,875	260	49	4	7/1	1-2	......
Beth Israel Hospital★[2]	Boston	S. A. Robins	Rad.	8,240	2,029	5	55	3	4/1	1-2	41.66
Boston City Hospital★[3, 4]	Boston	M. Ritvo	Rad.	53,679	3,755	69	34	4	....	1	66.67
Children's Hospital★[1, 4]	Boston	E. B. D. Newhauser	Roent.	18,413	1,869	....	80	1	....	1	41.67
Joseph H. Pratt Diagnostic Hospital[1, 4]	Boston	A. Ettinger	Roent.	6,475	1,882	....	..	3	7/1	1	100.00
Lahey Clinic[3]	Boston	H. F. Hare	Rad.	......	......	....	..	3	Varies	1-3	125.00
Massachusetts General Hospital★[3]	Boston	L. L. Robbins	Rad.	39,119b	13,311b	172b	62	3	....	1-3	......
Massachusetts Memorial Hospital★[3, 4]	Boston	G. Levene	Rad.	10,191	2,069	51	60	4	Varies	3	50.00
New England Deaconess Hospital[2]	Boston	J. Marks	Rad.	9,813	5,357	206	57	1	....	1	75.00
Peter Bent Brigham Hospital★[3]	Boston	M. C. Sosman	Rad.	38,546	3,045	....	68	3	....	1-3	......
†St. Elizabeth Hospital★[4]	Boston	A. M. Maloney	Roent.	4,817	......	12	53	1	6/1	1	75.00
†	Cambridge, Mass.	R. Schatzki	D. R.	13,145	6	....	41	1	4/1	1	50.00
†	Lawrence, Mass.	W. C. Miller	Rad.	10,923	4,348	61	62	1	7/1	1-3	......
	Newton, Mass.	C. Liebman	Roent.	8,196	1,860	....	37	1	....	2	100.00
†	Quincy, Mass.	W. S. Altman	Roent.	7,784	848	12	50	1	7/1	1-2	100.00
Salem Hospital★	Salem, Mass.	S. A. Wilson	Rad.	8,005	2,014	17	36	1	....	3	50.00
†Westfield State Sanatorium[1]	Westfield, Mass.	J. W. Turner	Rad.	5,097	5,552	70	31	1	7/1	1	255.00
†Memorial Hospital★[4]	Worcester, Mass.	W. J. Elliott	Rad.	20,432	3,369	26	54	1	7/1	1-2	100.00
St. Joseph Mercy Hospital★[3]	Ann Arbor, Mich.	S. W. Donaldson	Rad.	13,943	2,472	19	56	2	....	2-3	125.00
	Ann Arbor, Mich.	F. J. Hodges	Rad.	44,084	11,557	339	62	6	7/1	1-5	111.40
l★[2, 4]	Detroit	I. D. Harris	Roent.	33,000	......	....	27	2	7/1	1	167.00
	Detroit	F. A. Weiser	Rad.	12,532	6,688	17	63	3	7/1	1-3	75.00
	Detroit	L. Reynolds	Rad.	22,560	21,420	481	28	15	7/1	1	118.00
	Detroit	H. P. Doub	Rad.	41,537	5,164	317	69	4	7/1	1-3	200.00
	Detroit	C. C. Birkelo	Roent.	38,200	4,655	....	45	1	....	1	......
[1]	Detroit	J. M. Grace	D. R.	11,682	1,732	21	34	1	7/1	1-3	100.00
Providence Hospital★[3]	Detroit	W. A. Irwin	Rad.	17,155	6,518	205	52	1	7/1	1-3	140.00
St. Mary's Hospital★[3]	Detroit	J. E. Lofstrom	Rad.	9,612	5,479	20	54	5	7/1	3	......
†Wayne County General Hospital and Infirmary★[1]	Eloise, Mich.	N. R. Shippey	Rad.	22,797	6,210	25	35	2	....	1	251.25
	Flint, Mich.	D. R. Limbach	Rad.	23,803	1,879	91	30	1	7/1	1	......
	Grand Rapids, Mich.	R. J. McCandliss	Rad.	8,811b	4,836b	62b	43	1	7/1	1-3	100.00
†Hackley Hospital★[1]	Muskegon, Mich.	L. E. Holly	Roent.	6,410b	4,306b	17b	22	1	7/1	1-3	110.00
St. Mary's Hospital★[1]	Duluth, Minn.	J. R. McNutt	Rad.	7,495	2,880	49	69	1	7/1	1	75.00
	Minneapolis	C. Hansen	Roent.	7,455	8,937	....	56	1	7/1	1-3	......
	Minneapolis	G. T. Nordin	Rad.	13,044	4,699	298	43	1	....	2-3	125.00
	Minneapolis	L. G. Rigler	Rad.	27,609	10,889	705	82	8	7/1	1-3	115.00
	Rochester, Minn.	B. R. Kirkin	Rad.	(See page 89)		...	..	15	....	1-3	......
	Clayton, Mo.	E. W. Spinzig	Rad.	12,311	......	....	48	1	7/1	3	80.00
†Ellis Fischel State Cancer Hospital[1, 4]	Columbia, Mo.	D. V. LeMone	Rad.	3,395	13,802	....	83	1	7/1	1-2	50.00
†Kansas City General Hospital No. 1★[1]	Kansas City, Mo.	L. Scarpellino and S. Dann	Rad.	16,777	2,050	121	61	2	7/1	3	50.00
†Menorah Hospital★[1]	Kansas City, Mo.	D. S. Dann	Rad.	5,753	2,704	42	38	1	....	3	150.00
Research Hospital★[3, 4]	Kansas City, Mo.	I. H. Lockwood	Rad.	66,976	2,717	576	64	3	7/1	1-3	100.00
St. Joseph Hospital★[3]	Kansas City, Mo.	C. E. Virden	Rad.	9,625	5,590	225	57	1	....	1-3	100.00
†St. Luke's Hospital★[1]	Kansas City, Mo.	L. A. Scarpellino	Rad.	8,603	1,406	100	77	1	....	1-3	75.00
†St. Mary's Hospital★[1]	Kansas City, Mo.	E. R. Deweese	Rad.	4,324	252	27	62	2	....	1	......
Barnes Hospital★[3]	St. Louis	S. Moore	Rad.	32,254	51,754	162	72	10	7/1	1-3	25.00
Homer G. Phillips Hospital★[3]	St. Louis	W. E. Allen, Jr.	Rad.	16,954	1,531	46	22	1	7/1	1	50.00
†Jewish Hospital★[1]	St. Louis	P. C. Schnoebelen	Rad.	8,277b	4,089b	197b	42	2	7/1	1	......
St. Louis City Hospital★[3, 4]	St. Louis	D. C. Weir	Rad.	29,187	2,201	158	53	4	7/1	1	95.00
St. Luke's Hospital★[3]	St. Louis	O. C. Zink	Rad.	7,177	1,161	154	39	1	....	1	75.00
St. Mary's Group of Hospitals★[3]	St. Louis	L. Sante	Rad.	22,705	2,080	133	49	3	Varies	3	35.00
Creighton Memorial St. Joseph's Hosp.★[3, 4]	Omaha	J. F. Kelly	Rad.	16,148	2,103	53	41	1	....	1-3	......
†Nebraska Methodist Hospital★[1]	Omaha	H. B. Hunt	Rad.	7,202	2,723	56	93	1	6/1	1	100.00
University of Nebraska Hospital★[3]	Omaha	H. B. Hunt	Rad.	5,347	2,560	72	98	3	7/1	1-3	75.00
†St. Mary's Hospital[1]	Reno, Nev.	M. J. Thorpe	Roent.	2,574	170	3	16	1	....	3	......
Mary Hitchcock Memorial Hospital★[2]	Hanover, N. H.	L. K. Sycamore	Rad.	9,862	3,953	94	75	1	....	1	......
†Atlantic City Hospital★[1]	Atlantic City, N. J.	C. B. Kaighn	Rad.	8,105	1,045	39	35	1	7/1	1	......
†Jersey City Hospital★[1]	Jersey City, N. J.	H. J. Perlberg	Rad.	27,807	6,774	258	28	2	Varies	1-3	35.00
†Monmouth Memorial Hospital★[1]	Long Branch, N. J.	W. G. Herrman	Rad.	11,466	6,473	40	44	1	9/1	3	125.00
Newark Beth Israel Hospital★[1]	Newark, N. J.	N. J. Furst	Rad.	6,270	4,309	1,599	36	2	7/1	1	100.00
†Newark City Hospital★[1]	Newark, N. J.	P. J. Santora	Rad.	11,896	2,459	44	23	2	....	1	......
†Orange Memorial Hospital★[1]	Orange, N. J.	W. H. Seward	Rad.	11,654	6,403	57	33	1	7/1	1	125.00
†Newcomb Hospital[1]	Vineland, N. J.	J. G. Cohen	D. R.	6,752b	515b	....	49	1	....	1	......
†Albany Hospital★[1, 4]	Albany, N. Y.	W. P. Howard	Roent.	21,356	4,684	319	61	2	....	1	......
†Beth-El Hospital★[1, 4]	Brooklyn	M. Dannenberg	Roent.	6,136	849	51	39	2	1/1, 7/1	1	100.00
†Brooklyn Cancer Hospital[1]	Brooklyn	S. E. Westing	Rad.	6,894	9,775	365	25	4	Varies	1-2	100.00
Brooklyn Hospital★[2, 4]	Brooklyn	J. Pepe	Rad.	24,250	2,171	.....	41	2	7/1	1-2	......
Jewish Hospital★[3, 4]	Brooklyn	M. G. Wasch	Rad.	15,241	3,178	78	45	4	1/1	1+	30.00
Kings County Hosp.★ (D.R.,[2] Ther. Rad.[1])	Brooklyn	B. Ehrenpreis	D. R. Ther. Rad.	63,214	14,189	130	20	4	1/1, 7/1	1+	50.00 25.00
Long Island College Hospital★[3, 4]	Brooklyn	A. L. L. Bell	Rad.	17,803	3,035	107	38	3	7/1	3	
[4]	Brooklyn	L. A. Held	Roent.	3,128	555	31	20	1	7/1	1	100.00
	Brooklyn	G. W. Cramp	Rad.	9,096	1,612	74	50	2	7/1	2	25.00
Hospital★[3, 4]	Buffalo	E. G. Eschner	Rad.	28,698	2,834	21	46	6	7/1	3	100.00
†Clifton Springs Sanit. and Clinic[1]	Clifton Springs, N. Y.	G. S. Schwarz	D. R.	5,230	823	160	65	1	Varies	1-2	50.00
Meadowbrook Hospital★[2]	Hempstead, N. Y.	G. L. Carr	Rad.	6,944	3,077	15	70	2	7/1	1	115.00
Queens General Hospital★[2, 4]	Jamaica, N. Y.	I. S. Startz	Rad.	37,923	7,150	57	45	4	7/1	2	70.00

Numerical and other references will be found on page 89

24. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training[12]	Roentgenographic Examinations	X-Ray Treatments	Radium Treatments	Autopsy Percentage	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
†Charles S. Wilson Memorial Hospital★[1]	Johnson City, N. Y.	E. M. Jones	Roent.	14,039	1,761	161	35	1	7/1	1	$150.00
†Mount Vernon Hospital★[1]	Mount Vernon, N. Y.	W. H. Shehadi	Rad.	6,026	1,513	16	32	1	7/1	1-3	....
Bellevue Hospital, Div. III—N. Y. Univ.★[1, 4]	New York City	I. I. Kaplan	Ther. Rad.	......	......	....	..	6	Varies	1	45.00
Bellevue Hospital, Div. IV—Open Div.★[1, 4]	New York City	L. J. Friedman	D. R.	176,888b	......	....	..	5	1/1, 7/1	1½	45.00
Beth Israel Hospital★[3, 4]	New York City	A. J. Bendick	Rad.	8,691	2,818	24	43	2	7/1	1	50.00
Bronx Hospital★[2, 4]	New York City	W. Snow	Rad.	9,089	1,365	40	27	2	7/1	1-3	75.00
†Doctors Hospital[1]	New York City	H. E. Illick	Roent.	7,120	126	....	49	1	7/1	1+	200.00
Flower and Fifth Avenue Hospitals★[3, 4]	New York City	I. J. Borelli	Rad.	301,927	2,780	260	31	2	6/1	1	....
French Hospital★[2]	New York City	E. Claiborne	Rad.	12,605	2,008	....	42	1	2/1	1-2	100.00
Goldwater Memorial Hospital★[2, 4]	New York City	H. K. Taylor	Roent.	10,662	332	....	50	5	....	1-2	120.00
Hospital for Joint Diseases★[2, 4]	New York City	M. M. Pomeranz	Rad.	23,550	2,025	16	47	1	....	1	40.00
Lenox Hill Hospital★[2, 4]	New York City	F. H. Chuslin	Roent.	18,263	2,891	16	47	2	Varies	1-3	50.00
Lincoln Hospital★[1, 4]	New York City	E. Kraft	Rad.	27,092	693	....	28	2	....	1-3	60.00
Memorial Hospital[1, 4]	New York City	R. E. Harendeen	D. R.	25,181	52,093	1,740	51	2	....	1	....
Metropolitan Hospital★[2, 4]	New York City	T. B. Weinberg	Rad.	20,052	......	....	25	2	7/1	1	120.00
Montefiore Hosp. for Chronic Diseases★[2, 4]	New York City	S. Fineman	Rad.	22,072	6,881	47	50	2	1/1, 7/1	1	50.00
Morrisania City Hospital★[2, 4]	New York City	S. F. Weitzner	Rad.	19,982	2,102	26	23	2	....	1-2	....
Mount Sinai Hospital★[3, 4]	New York City	M. L. Sussman	Rad.	33,791	8,813	76	59	5	1/1, 7/1	1-3	....
New York City Hospital★[1, 4]	New York City	C. Gottlieb	D. R.	21,820	210	....	47	3	7/1	1	120.00
New York Hospital★[2, 4]	New York City	H. Temple	Rad.	76,241	8,426	240	66	5	7/1	1-4	25.00
New York Polyclinic Medical School and Hospital★[2]	New York City	E. E. Smith	Rad.	9,507	2,401	36	27	2	7/1	2	25.00
New York Post-Graduate Medical School and Hospital★[2]	New York City	W. H. Meyer	Rad.	14,192	3,166	765	39	3	1/1, 7/1	1-2	30.00
Presbyterian Hospital★[2, 4]	New York City	R. Golden	Rad.	82,137	17,901	373	66	12	....	3	41.66
Roosevelt Hospital★[3, 4]	New York City	W. H. Boone	Rad.	22,518	2,463	...	36	3	7/1	1-3	70.00
St. Luke's Hospital★[2]	New York City	E. J. Ryan	Rad.	24,167	4,338	91	41	2	Varies	1-3	50.00
†St. Vincent's Hospital★[1]	New York City	W. W. Mayer and C. Oderr	Rad.	24,206	4,175	136	46	2	7/1	1-3	50.00
Sydenham Hospital★[1]	New York City	A. S. Unger	Roent.	6,460	361	18	36	2	7/1	1	75.00
Genesee Hospital★[1]	Rochester, N. Y.	S. Larson	Roent.	11,352	1,240	20	59	1	7/1	1	41.66
Rochester General Hospital★[3, 4]	Rochester, N. Y.	L. R. Lingeman	Rad.	21,517	3,936	14	75	2	7/1	1-3	70.00
†St. Mary's Hospital★[1]	Rochester, N. Y.	A. V. Winchell	Rad.	6,879	784	12	52	1	7/1	1-3	125.00
Strong Memorial—Rochester Municipal Hospital★[3, 4]	Rochester, N. Y.	G. H. Ramsey	Rad.	23,463	7,022	280	72	8	....	1-4	83.33
Ellis Hospital★[1, 4]	Schenectady, N. Y.	K. L. Mitton	Roent.	11,038	1,475	....	27	1	7/1	1-3	100.00
Sea View Hospital[1, 4]	Staten Island, N. Y.	A. V. Shapiro	D. R.	15,424	......	....	15	2	1/1, 7/1	1	120.00
†Crouse-Irving Hospital★[1]	Syracuse, N. Y.	C. I. Potter	Roent.	5,350	566	....	27	1	1/1	1-3	50.00
Grasslands Hospital★[3, 4]	Valhalla, N. Y.	A. B. Debbie	Rad.	13,636	4,493	61	58	2	7/1	1-3	75.00
Charlotte Memorial Hospital★[1, 4]	Charlotte, N. C.	A. Tuggle	Rad.	14,681	1,792	124	50	1	9/1	1-3	75.00
Duke Hospital★[3, 4]	Durham, N. C.	R. J. Reeves	Rad.	41,305	10,074	246	59	7	7/1	1	....
Watts Hospital★[3]	Durham, N. C.	W. W. Vaughan	Rad.	20,709	8,975	135	41	2	7/1	1-2	50.00
†City Hospital★[1]	Winston-Salem, N. C.	G. C. Cook	Roent.	4,296	1,739	31	34	1	7/1	1-3	50.00
North Carolina Baptist Hospital★[3, 4]	Winston-Salem, N. C.	J. P. Rosseau	Rad.	18,235	7,466	59	56	3	....	1-3	....
†Bismarck Evangelical Hospital[1]	Bismarck, N. D.	H. M. Berg	Rad.	15,930	2,904	31	44	1	Varies	3	115.00
City Hospital★[3]	Akron, Ohio	F. T. Moore	Rad.	21,408	8,713	84	47	2	7/1	1-3	100.00
†Peoples Hospital★[1]	Akron, Ohio	R. T. Allison	Rad.	8,305	5,348	45	36	1	7/1	1-3	100.00
†Mercy Hospital★[1]	Canton, Ohio	G. D. Popoff	Rad.	5,746	3,036	46	32	11	....	1-3	100.00
Cincinnati General Hospital★[3]	Cincinnati	H. G. Reineke and B. Felson	Rad.	18,243	7,417	60	47	7	7/1	1-4	....
Jewish Hospital★[3]	Cincinnati	S. Brown	Rad.	1,948	2,056	74	52	1	7/1	1-2	75.00
City Hospital★[3, 4]	Cleveland	H. Hauser	Rad.	23,224	7,223	....	54	4	....	1-3	....
Cleveland Clinic Foundation Hospital[3, 4]	Cleveland	C. R. Hughes	Rad.	74,659	8,572	256	46	6	7/1	1-3	100.00
†Lutheran Hospital★[1, 4]	Cleveland	J. A. Groh	Rad.	8,941	2,371	8	44	1	7/1	1	....
†Mount Sinai Hospital★[1]	Cleveland	H. A. Mahrer	Rad.	9,215	2,454	32	45	1	7/1	1	100.00
†St. Alexis Hospital★[1]	Cleveland	E. P. McNamee	Rad.	9,142	......	20	35	1	....	1	75.00
St. Luke's Hospital★[3]	Cleveland	D. D. Brannan	Rad.	17,791	3,516	141	49	3	6/25	3	60.00
St. Vincent's Charity Hospital★[3]	Cleveland	J. R. Andrews	Rad.	17,869	1,534	114	41	2	....	1-3	....
University Hospital★[3, 4]	Cleveland	H. L. Friedell	Rad.	27,072	5,630	464	75	4	7/1	1	25.00
Starling-Loving University Hospital★[3, 4]	Columbus, Ohio	H. G. Means	Rad.	17,689	3,153	43	60	3	7/1	1-3	50.00
†Miami Valley Hospital★[1]	Dayton, Ohio	G. Nicoll	Rad.	8,042b	1,019b	31b	42	1	7/1	1-3	....
†St. Vincent's Hospital★[1, 4]	Toledo, Ohio	C. E. Hufford	Rad.	8,358	......	....	48	1	7/1	1-3	100.00
†Youngstown Hospital★[1]	Youngstown, Ohio	J. Heberding and E. C. Baker	Rad.	16,466	9,004	42	44	1	7/1	1-3	100.00
University Hospital★[1]	Oklahoma City	J. E. Heatley	Rad.	15,712	11,617	104	43	3	7/1	1-2	35.00
Good Samaritan Hospital★[3]	Portland, Ore.	G. B. Isenhart	Rad.	9,160	1,490	35	50	1	7/1	1-3	75.00
†Providence Hospital★[1]	Portland, Ore.	S. E. Rees	Roent.	8,662	1,385	....	40	2	7/1	1-3	75.00
St. Vincent's Hospital[3]	Portland, Ore.	S. E. Rees	Rad.	......	......	....	40	1	....	1	....
University of Oregon Medical School Hospitals and Clinics★[3, 4]	Portland, Ore.	W. Y. Burton	Rad.	25,734	4,740	24	63	3	7/1	3	75.00
A[illegible]★[3]	Abington, Pa.	J. D. Zulick	Rad.	14,416	2,675	83	53	1	7/1	3	50.00
B[illegible]	Bryn Mawr, Pa.	R. S. Bromer	Rad.	14,602	4,067	131	53	2	1/1, 7/1	1	75.00
G[illegible] Hospital★[3]	Danville, Pa.	C. L. Hinkel	Rad.	10,545	1,847	48	54	3	....	1-3	75.00
†C[illegible]ospital★[1]	Johnstown, Pa.	C. B. Cobern	Roent.	7,238	12,339	25	11	1	9/1	1	150.00
[illegible][4]	Philadelphia	W. Newcomet	Ther. Rad.	1,666	7,925	389	55	1	....	1	....
[illegible]	Philadelphia	D. A. Sampson	Rad.	11,777	2,457	29	32	1	....	1-2	50.00
[illegible]	Philadelphia	F. F. Borzell	Rad.	19,608	516	22	56	1	....	1-2	....
[illegible]ospital★[1]	Philadelphia	T. P. Loughery	Rad.	16,361	1,390	50	51	1	7/1	1-2	50.00
[illegible] of Penn.★[3]	Philadelphia	A. Finkelstein	Rad.	15,233	5,495	142	42	7	7/1	1-2	25.00
Hahnemann Hospital★[2, 4]	Philadelphia	J. W. Frank and N. V. Ludwick	Rad.	......	......	....	61	2	....	1-3	50.00
Hospital of the University of Penn.★[3, 4]	Philadelphia	E. P. Pendergrass	Rad.	90,131	111,925	105	79	12	7/1	4-7	....
Jeanes Hospital[2, 4]	Philadelphia	E. L. Lame	Ther. Rad.	2,279	2,195	40	50	1	6/1	1-3	75.00
Jefferson Medical College Hospital★[3]	Philadelphia	P. C. Swenson	Rad.	31,179	9,952	774	59	11	....	1-3	....
Jewish Hospital★[3, 4]	Philadelphia	L. Solis-Cohen	Rad.	13,571	4,428	50	60	2	7/1	1-2	50.00
Lankenau Hospital★[2]	Philadelphia	J. T. Farrell, Jr.	Rad.	11,366	2,762	72	53	2	7/1	1-3	50.00
Mount Sinai Hospital★[3, 4]	Philadelphia	G. Rosenbaum and L. Edelkin	Rad.	8,632	690	100	72	1	7/1	1-2	50.00
†Nazareth Hospital★[1]	Philadelphia	J. S. Fettar	Roent.	6,637	3,122	14	26	1	7/1	1-2	100.00
Pennsylvania Hospital★[3]	Philadelphia	P. A. Bishop	Rad.	14,432	1,992	156	59	2	1/1, 10/1	1-3	20.00
Philadelphia General Hospital★[2, 4]	Philadelphia	B. P. Widmann	Rad.	26,337	15,831	118	58	6	....	1-3	....
Presbyterian Hospital★[2, 4]	Philadelphia	E. L. Lame	Rad.	9,076	4,924	78	57	2	....	3	50.00
Temple University Hospital★[3, 4]	Philadelphia	E. Chamberlain	Rad.	28,486	6,284	71	49	2	7/1	3	50.00
Mercy Hospital★[1, 4]	Pittsburgh	J. A. L. McCullough	Rad.	22,869	2,677	150	34	1	9/1	1-3	100.00
Montefiore Hospital★[3]	Pittsburgh	M. F. Goldsmith	Rad.	9,963	2,464	....	41	2	7/1	3	50.00
†St. Francis Hospital★[1]	Pittsburgh	L. H. Osmond	Rad.	37,080	1,074	48	21	1	....	1-3	100.00
University of Pittsburgh Medical Center[4]	Pittsburgh	S. G. Henderson	Rad.	7,641	2,623	67	20	2	7/1	1-3	41.67

Numerical and other references will be found on page 89.

24. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training[12]	Roentgenographic Examinations	X-Ray Treatments	Radium Treatments	Autopsy Percentage	Asst. Res. and Residencies Offered[8]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Western Pennsylvania Hospital★[3]	Pittsburgh	R. G. Alley and E. J. Euphrat	Rad.	12,714	7,080	170	19	1	....	1-3	$100.00
†Reading Hospital★[1, 4]	Reading, Pa.	G. W. Chamberlin	Rad.	3,047	8,380	10	57	2	....	1	50.00
Robert Packer Hospital★[3]	Sayre, Pa.	S. P. Perry	Rad.	12,907	242	56	49	1	7/1	1-3	150.00
†Chester County Hospital★[1]	West Chester, Pa.	H. Y. Pennell	Roent.	10,043b	1,840b	53b	..	1	....	1	......
†Columbia Hospital★[1]	Wilkinsburg, Pa.	W. J. McGregor	Roent.	10,258	2,288	....	20	1	....	1	......
†Rhode Island Hospital★[1]	Providence, R. I.	L. A. Martineau	Rad.	21,330	3,223	117	61	2	....	1-2	50.00
Roper Hospital★[3]	Charleston, S. C.	H. Rudisill, Jr.	Rad.	11,932	3,014	72	41	4	7/1	1-4	25.00
†Columbia Hospital★[1]	Columbia, S. C.	J. B. Hall	Roent.	16,422	1,666	....	31	1	7/1	1	100.00
Baptist Memorial Hospital★[3]	Memphis, Tenn.	J. E. Whiteleather	Rad.	14,723	3,021	252	19	2	7/1	1-2	75.00
John Gaston Hospital★[3]	Memphis, Tenn.	D. Carroll	Rad.	22,317	2,973	62	63	2	7/1	1	......
[illegible]	Memphis, Tenn.	J. C. King	Rad.	13,081	5,393	....	44	3	....	3	75.00
[illegible] Meharry [illegible]	Nashville, Tenn.	L. D. Scott	Rad.	4,023	1,285	22	29	1	7/1	1	75.00
[illegible] l★[3, 4]	Nashville, Tenn.	C. C. McClure	Rad.	16,822	3,476	....	59	3	7/1	1	......
[illegible] [4]	Dallas, Texas	F. M. Windrow	Rad.	10,891	3,974	39	30	1	7/1	1	50.00
[illegible]	Dallas, Texas	M. L. Mazer	D. R.	6,602	687	18	23	1	7/1	1	......
[illegible]	Dallas, Texas	J. E. Miller	Rad.	14,441	2,948	59	56	2	....	1-3	......
[illegible] anch)★[3, 4]	Galveston, Texas	M. Schneider	Roent.	24,099	2,772	....	53	5	....	1-3	50.00
†Methodist Hospital★[1, 4]	Houston, Texas	C. H. Burge	Roent.	9,208	1,873	18	48	1	1/1	1-3	75.00
†St. Joseph's Infirmary[1]	Houston, Texas	P. E. Wigby	Rad.	17,637	4,693	60	35	1	....	1	......
†Santa Rosa Hospital★[1]	San Antonio, Texas	M. Davis	D. R.	9,829	986	1	28	1	7/1	1-3	......
Scott and White Hospital★[3]	Temple, Texas	C. A. Stevenson	Rad.	42,268	6,747	346	49	3	....	1	150.00
†Wichita Falls Clinic-Hospital★[1]	Wichita Falls, Texas	C. D. Wilson	Rad.	12,791	2,088	21	66	1	Varies	1-3	250.00
†Salt Lake County General Hospital★[1, 4]	Salt Lake City	H. H. Lerner	D. R.	6,110	2,556	...	55	4	7/1	1-2	50.00
Mary Fletcher Hospital★[1, 4]	Burlington, Vt.	O. S. Peterson, Jr., and A. B. Soule, Jr.	Rad.	8,746	4,660	216	58	4	1/1	1	100.00
University of Virginia Hospital★[3, 4]	Charlottesville, Va.	V. W. Archer	Rad.	35,331	6,627	90	68	6	7/1	1-3	......
†De Paul Hospital★[1, 4]	Norfolk, Va.	W. Whitmore	Roent.	5,317	1,886	81	53	1	7/1	1-2	150.00
†Norfolk General Hospital★[1]	Norfolk, Va.	P. B. Parsons	Rad.	18,340	5,513	28	35	1	7/1	1-2	100.00
Medical College of Virginia, Hosp. Div.★[3, 4]	Richmond, Va.	F. B. Mandeville	Rad.	20,470	6,054	158	43	5	7/1	1	46.50
†Swedish Hospital (Tumor Clinic)★[1]	Seattle, Wash.	S. Cantril and T. Blake	Ther. Rad.	......	6,013	144	45	2	7/1	1	100.00
Virginia Mason Hospital★[3]	Seattle, Wash.	T. B. Carlile	Rad.	18,608	3,346	83	70	1	....	1	75.00
†Sacred Heart Hospital★[1]	Spokane, Wash.	M. Harris	Rad.	5,125b	1,770b	40b	12	1	Varies	1-3	125.00
State of Wisconsin General Hospital★[3, 4]	Madison, Wis.	E. A. Pohle	Rad.	32,742	9,203	216	84	6	....	3	25.00
Columbia Hospital★[3]	Milwaukee	S. A. Morton	Rad.	7,057	2,300	50	59	1	7/1	3	50.00
†Milwaukee County Hospital★[1, 4]	Milwaukee	J. L. Marks	D. R.	18,100	1,400	17	29	3	Varies	1-3	82.26
†Milwaukee Hospital★[1]	Milwaukee	H. Hetke	Rad.	15,503	1,842	85	55	1	7/1	1-3	75.00
†Queen's Hospital★[1]	Honolulu, Hawaii	L. L. Buzaid	Rad.	6,822	1,480	19	61	1	4/1	1	100.00

25. SURGERY

The following services are approved by the Council and the American Board of Surgery. This approval extends to July 1, 1950. In the meantime these services will be reviewed in collaboration with the American Board of Surgery to determine whether approval will be continued beyond that date and to determine the number of years of training *in individual approved hospitals that will be accepted as preparation for examination by the American Board of Surgery.*

Hospitals, 544, Assistant Residencies and Residencies, 2,977

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[9]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Army										
Letterman General Hospital★	San Francisco	L. D. Heaten	1,446	1,875	23	17	4	1/1	1-3	n
Fitzsimons General Hospital★	Denver	J. H. Forsee	1,238	1,778	54	47	4	1/1	1-3	n
Walter Reed General Hospital★	Washington, D.C.	F. E. Hamilton	828	2,835	24	18	8	1/1	1-3	n
Oliver General Hospital★	Augusta, Ga.	E. C. Lowry	1,969	644	4	4	6	1/1	1-2	n
Brooke General Hospital★	San Antonio, Texas	S. F. Seeley	2,947	6,009	31	29	9	1/1	1-3	n
Madigan General Hospital★	Fort Lewis, Wash.	C. S. Lyter	6,774	1,539	29	22	7	1/1	1	n
Gorgas Hospital★	Ancon, C.Z.	J. R. Shaeffer	2,203	12,280	53	40	5	1/1	1-3	n
United States Navy										
U. S. Naval Hospital★	Long Beach, Calif.	L. L. Bean	3,450	6,920	32	31	4	Varies	3	n
U. S. Naval Hospital★	Oakland, Calif.	....	4,329	....	53	44	7	....	1	n
U. S. Naval Hospital★	San Diego	H. A. Gross	2,910	4,905	22	14	6	Varies	1	n
U. S. Naval Hospital★	Jacksonville, Fla.	....	......	....	...	...	1	7/1	1	n
U. S. Naval Hospital★	Pensacola, Fla.	....	......	....	...	...	1	....	1	n
U. S. Naval Hospital★	Great Lakes, Ill.	G. A. Gray	2,795	1,616	7	7	2	Varies	1	n
U. S. Naval Hospital	Annapolis, Md.	P. K. Perkins	1,227	1,547	1	1	1	Varies	1	n
U. S. Naval Hospital★	Bethesda, Md.	L. G. Bell	3,111	3,930	58	43	7	Varies	1-3	n
U. S. Naval Hospital★	Chelsea, Mass.	....	......	....	...	...	2	....	1	n
U. S. Naval Hospital★	Brooklyn	E. B. Keck	3,733	2,558	40	38	1	....	1	n
U. S. Naval Hospital★	St. Albans, N.Y.	F. H. Johnson	1,068	....	32	0	4	10/1	1-4	n
U. S. Naval Hospital★	Philadelphia	T. G. Hays	4,950	7,917	55	12	4	....	1	n
U. S. Naval Hospital★	Newport, R.I.	....	......	....	...	...	2	....	1	n
U. S. Naval Hospital★	Portsmouth, Va.	....	......	....	...	...	2	....	1	n
United States Public Health Service										
U. S. Marine Hospital★	San Francisco	S. P. Cooper	......	16,518	27	7	6	7/1	1-4	n
U. S. Marine Hospital★	Chicago	R. W. Flynn	......	....	...	...	1	....	1	n
U. S. Marine Hospital★[1]	New Orleans	O. C. Williams	2,217	6,834	24	18	5	1/1, 7/1	1-4	n
U. S. Marine Hospital★[4]	Baltimore	J. D. Lane, Jr.	2,592	4,778	7	6	8	7/1	1-3	n
U. S. Marine Hospital★	Boston	R. L. Waugh	2,261	6,868	15	8	4	7/1	4	n
U. S. Marine Hospital★[4]	Detroit	M. B. Noyes	1,519	....	32	13	4	7/1	4	n
†U. S. Marine Hospital★	Stapleton, S.I., N.Y.	H. L. Skinner	2,815	13,179	40	22	12	7/1	1-3	n
U. S. Marine Hospital★	Cleveland	M. E. Myers	1,263	3,269	9	3	2	7/1	1-2	n
†U. S. Marine Hospital★	Seattle	T. S. McGowan	2,010	1,817	25	14	6	7/1	1-3	n
Veterans Administration										
†Veterans Admin. Hospital	Los Angeles	C. H. McIntyre	1,919	431	19	8	2	....	1	$275.00
Veterans Admin. Hospital	San Francisco	H. L. Silvani	1,033	2,524	6	6	10	7/1	1-3	275.00
†Veterans Admin. Hospital	Van Nuys, Calif.	J. A. Weinberg	1,230	4,490	17	16	12	1/1, 7/1	1-5	275.00
†Veterans Admin. Hospital	Fort Logan, Colo.	P. M. Ireland	......	....	...	...	7	....	1-3	275.00
Veterans Admin. Hospital	Newington, Conn.	A. Hurwitz	2,378	....	12	8	9	7/1	1-3	275.00
†Veterans Admin. Hospital	Washington, D.C.	V. M. Iovine	405	10,608	11	9	7	Varies	1-5	275.00

Numerical and other references will be found on page 89

25. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Veterans Admin. Hospital	Coral Gables, Fla		1,488	1,173	14	14	6	1/1, 7/1	3-5	$275.00
Veterans Admin. Hospital	Chamblee, Ga	M. H. Harris	305	......	70	4	5	7/1	1-3	275.00
†Veterans Admin. Hospital	Hines, Ill	C. B. Puestow	4,121	......	81	49	42	....	1-2	275.00
†Veterans Admin. Hospital	Indianapolis	H. L. Egbert	1,912	621	60	30	8	1/1, 7/1	1-5	275.00
†Veterans Admin. Hospital	Des Moines, Iowa	L. T. Palumbo	3,000	......	48	27	16	7/1	3-6	275.00
Veterans Admin. Hospital	Topeka, Kansas	C. J. Hufnagel	......	......	...	...	3	....	1	275.00
†Veterans Admin. Hospital	Wadsworth, Kan	W. I. Hinkle	2,400	......	36	32	14	Varies	1-5	275.00
†Veterans Admin. Hospital	Louisville, Ky	J. Hamilton	1,591	140	26	17	18	7/1	1-3	275.00
†Veterans Admin. Hospital	New Orleans	U. Maes	851	400	19	15	9	7/1	1-5	275.00
†Veterans Admin. Hospital	Fort Howard, Md	J. M. Miller	509	......	17	9	5	Varies	1-3	275.00
Veterans Admin. Hospital	Boston	R. Warren	2,163	4,009	33	28	14	6/1	1-3	275.00
†Veterans Admin. Hospital	Framingham, Mass	H. H. Faxon	978	......	9	7	14	7/1	1-3	275.00
†Veterans Admin. Hospital	Dearborn, Mich	G. S. Bates	2,210	3,142	43	21	8	7/1	2-3	275.00
†Veterans Admin. Hospital	Minneapolis	L. J. Hay	1,669	......	21	11	19	....	1	275.00
†Veterans Admin. Hospital	Jefferson Barracks, Mo	W. F. Rose	2,142	......	31	...	16	7/1	1-3	275.00
†Veterans Admin. Hospital	Batavia, N.Y	W. S. Walls	1,432	108	33	20	8	7/1	1-3	275.00
Veterans Admin. Hospital	New York City	P. Sauer	2,361	5,588	51	32	18	1/1, 7/1	2-4	275.00
†Veterans Admin. Hospital	Staten Island, N.Y	R. B. Moreland	2,006	......	47	16	12	7/1	1-4	275.00
†Veterans Admin. Hospital	Cleveland	P. F. Partington	2,518	......	58	33	17	7/1	1-3	275.00
†Veterans Admin. Hospital	Dayton, Ohio	C. C. Burton	1,050	4,828	53	21	18	Varies	1-3	275.00
†Veterans Admin. Hospital	Oklahoma City	F. A. Quenzer	......	650	17	10	5	7/1	1-2	275.00
†Veterans Admin. Hospital	Portland, Oregon	R. A. Wise	2,961	......	109	81	9	7/1	1-3	275.00
†Veterans Admin. Hospital	Aspinwall, Pa	W. W. Fellows	2,562	80	36	30	9	7/1	1-3	275.00
Veterans Admin. Hospital	Columbia, S. C.	K. M. Lippert	1,633	......	51	14	5	1/1	1-3	275.00
†Veterans Admin. Hospital	Memphis, Tenn	R. F. Bowers	1,016	82	55	42	19	7/1	1-3	275.00
†Veterans Admin. Hospital	Nashville, Tenn	G. S. Johnson	......	......	...	...	10	7/1	1-3	275.00
Veterans Admin. Hospital	Dallas, Texas	L. J. Kleinsasser	2,602	......	24	14	18	Varies	1	275.00
†Veterans Admin. Hospital	McKinney, Texas	J. P. North	......	......	...	...	10	7/1	1-5	275.00
†Veterans Admin. Hospital	Salt Lake City	J. A. Gubler	1,742	532	17	17	2	1/1, 7/1	1	275.00
Veterans Admin. Hospital	White River Jct., Vt	P. Cooper	1,768	......	10	9	8	7/1	1-2	275.00
†Veterans Admin. Hospital	Richmond, Va	R. F. MacDonald	1,420	240	18	12	12	Varies	1-3	275.00
Veterans Admin. Hospital	Milwaukee	F. Raine	1,303	410	24	20	12	7/1	1-3	275.00
Nonfederal										
Jefferson-Hillman Hospital★[4]	Birmingham, Ala	J. M. Mason	3,028	12,624	119	39	7	7/1	1-3	50.00
Norwood Hospital★	Birmingham, Ala	C. N. Carraway	2,276	13,200	15	7	3	7/1	3	100.00
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company★	Fairfield, Ala	L. Noland and R. A. Hamrick	1,313	12,240	30	7	3	7/1	1-3	200.00
St. Joseph's Hospital★	Phoenix, Ariz	J. M. Greer	3,360	......	54	20	1	....	1-2	......
†St. Monica's Hospital★	Phoenix, Ariz	T. Bate	638	......	19	6	1	9/1	1	150.00
†St. Mary's Hospital and Sanitarium	Tucson, Ariz	R. W. Rudolph	723	......	18	4	3	7/1	1	150.00
Baptist State Hospital★	Little Rock, Ark	R. M. Eubanks	1,605	......	88	16	2	1/1	5	125.00
†St. Vincent's Infirmary★	Little Rock, Ark	H. G. Hollenberg	2,075	......	43	17	1	....	1	......
†University Hospital★[4]	Little Rock, Ark	G. O. Dean	688	3,221	39	19	6	7/1	1	50.00
Herrick Memorial Hospital★	Berkeley, Calif	S. H. Babington	3,011	557	49	20	2	7/1	1-3	110.00
San Joaquin General Hospital★	French Camp, Calif	W. Brock	3,973	8,073	224	118	4	7/1	1-3	200.00
General Hospital of Fresno County★	Fresno, Calif	C. M. Vanderburgh	805	3,657	48	14	4	7/1	1-3	230.00
Seaside Memorial Hospital★[4]	Long Beach, Calif	C. A. Lauer	1,686	......	23	8	2	7/1	1-2	150.00
California Hospital★[4]	Los Angeles	W. H. Brownfield	2,872	293	40	24	4	7/1	3	100.00
Cedars of Lebanon Hospital★[4]	Los Angeles	L. Feiger	4,753	23,376	113	47	2	7/1	1	50.00
Hospital of the Good Samaritan★[4]	Los Angeles	G. L. Chaffin	7,070	3,851	101	35	3	7/1	3	200.00
Los Angeles County Hospital★[4]	Los Angeles	L. B. Sherry	3,891	8,817	287	105	7	Varies	5	165.00
Queen of Angels Hospital★	Los Angeles	W. J. Sullivan	2,914	......	...	52	2	7/1	3	......
St. Vincent's Hospital	Los Angeles	F. Breslin	4,005	......	28	18	3	7/1	2	......
Santa Fe Coast Lines Hospital★	Los Angeles	....	959	......	21	10	2	7/1	1	195.00
White Memorial Hospital★	Los Angeles	G. Thomason	2,431	9,906	30	19	3	....	1-3	147.33
Highland-Alameda County Hospital★[4]	Oakland, Calif	W. W. Crane and S. Everingham	882	......	48	20	3	....	1-3	130.00
Peralta Hospital[4]	Oakland, Calif	P. C. Samson	2,586	......	17	11	3	7/1	1	125.00
Permanente Foundation Hospital★[4]	Oakland, Calif	C. C. Cutting	1,524	13,164	19	18	1	6/1	1	125.00
Samuel Merritt Hospital	Oakland, Calif	W. E. Mitchell	1,516	......	13	10	2	7/1	1-3	110.00
Collis P. and Howard Huntington Memorial Hospital★	Pasadena, Calif	A. C. Pattison	1,095	1,328	16	9	2	1/1, 7/1	1-2	85.00
San Bernardino County Charity Hospital★	San Bernardino, Calif	C. J. Clock	505	4,888	73	39	2	1/1	1-2	170.00
San Diego County General Hospital★	San Diego	H. G. Holder	1,109	2,611	78	28	3	7/1	1	187.00
Children's Hospital★[4]	San Francisco	A. K. Kilgore	646	......	8	5	1	7/1	1	50.00
Franklin Hospital★[4]	San Francisco	T. F. Mullen	1,818	......	12	8	7	7/1	1	100.00
French Hospital★[4]	San Francisco	W. L. Rogers	1,007	......	7	4	1	....	1	......
Mary's Help Hospital★[4]	San Francisco	E. Carlson	2,894	12,596	42	17	1	7/1	1	150.00
Mount Zion Hospital★[4]	San Francisco	F. I. Harris	1,056	1,112	35	27	8	7/1	1	50.00
St. Luke's Hospital★[4]	San Francisco	G. D. Delprat	4,457	1,136	48	14	2	7/1	1-2	100.00
St. Mary's Hospital★	San Francisco	E. Butler	......	......	...	...	3	4/1	1	100.00
San Francisco Hospital★[4]	San Francisco	H. Brunn	1,762	......	66	28	11	....	1	175.00
Southern Pacific General Hospital★	San Francisco	W. W. Washburn	......	......	...	...	4	....	1-2	......
Stanford University Hospital★[4]	San Francisco	E. F. Holman	2,094	9,904	64	39	9	7/1	1-2	50.00
University of California Hospital★[4]	San Francisco	H. G. Bell	1,514	10,328	47	28	9	Varies	1	50.00
Santa Clara County Hospital★	San Jose, Calif	J. C. Wilson	......	......	...	...	1	....	1	235.00
Santa Barbara Cottage Hospital★[4]	Santa Barbara, Calif	I. Wills	933	......	15	14	3	Varies	3	100.00
Childrens Hospital	Denver	G. Packard	814	696	12	11	1	7/1	1	50.00
Colorado General Hospital★	Denver	....	(See University of Colorado Medical Center)							
Denver General Hospital★	Denver	....	(See University of Colorado Medical Center)							
St. Luke's Hospital★	Denver	C. W. Metz	2,045	......	51	26	2	7/1	1-2	50.00
University of Colorado Medical Center										
	Denver	J. M. Foster, Jr.	509	4,721	47	40	5	1/1, 7/1	2-4	75.00
	Denver	J. M. Foster, Jr.	4,457	6,423	263	123	5	7/1	2-4	50.00
	Pueblo, Colo	....	1,322	10,334	32	11	1	7/1	1	75.00
	Bridgeport, Conn	....	......	......	...	...	1	....	1	......
	Hartford, Conn	....	4,236	......	95	59	8	7/1	1-5	......
	Hartford, Conn	B. B. Landry	3,596	......	79	36	3	....	3	......
	New Britain, Conn	B. B. Clark	1,672	......	71	21	3	7/1	1-3	75.00
★	New Haven, Conn	R. W. Nichols	1,426	......	34	11	3	7/1	3	40.00
New Haven Unit (University Service)★[1]	New Haven, Conn	G. Lindskog	2,251	10,096	72	44	6	7/1	1	40.00
Hospital of St. Raphael★	New Haven, Conn	W. F. Verdi	2,762	173	93	30	2	7/1	1	75.00
Lawrence and Memorial Associated Hospitals★[4]	New London, Conn	F. B. Hartman	1,051	......	34	14	1	7/1	1	150.00
Delaware Hospital★	Wilmington, Del	L. J. Jones	1,711	1,985	77	44	1	3/1	1	110.00
	Wilmington, Del	J. G. Spackman	2,314	1,928	66	35	5	7/1	1-3	110.00
†	Wilmington, Del	D. J. Preston	836	4,036	22	8	1	7/1	1-3	150.00
Hosp.★	Washington, D.C	J. H. Lyons	3,388	1,224	55	25	4	7/1	1	50.00
Doctors Hospital★	Washington, D.C	C. S. White	2,008	......	47	36	3	....	1-2	......
Freedmen's Hospital★[4]	Washington, D.C	C. R. Drew	1,354	7,926	69	16	10	7/1	1-6	116.66

Numerical and other references will be found on page 89

25. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Gallinger Municipal Hospital★[4]	Washington, D.C.	B. Blades	1,241	6,882	55	23	6	7/1	3	$ 75.00
Garfield Memorial Hospital★[4]	Washington, D.C.	J. O. Warfield, Jr	3,416	1,192	108	68	4	7/1	1-3	50.00
spital★	Washington, D.C.	R. J. Coffey	2,377	......	36	25	7	7/1	1-4	25.00
sity Hosp.★[4]	Washington, D.C.	B. Blades	......	......	...	...	9	7/1	1-5	50.00
	Washington, D.C.	P. S. Putzki and F. R. Sanderson	2,798	1,494	24	15	3	7/1	1	75.00
Sibley Memorial Hospital★[4]	Washington, D.C.	P. S. Putzki	4,725	......	80	38	6	7/1	1-2	75.00
Duval County Hospital★	Jacksonville, Fla	E. Jelks	702	......	66	27	4	7/1	1	125.00
Riverside Hospital[4]	Jacksonville, Fla	H. A. Peyton	......	......	...	...	1	7/1	1	......
†St. Luke's Hospital★	Jacksonville, Fla	K. A. Morris	1,181	109	24	5	1	7/1	1	125.00
St. Vinc	Jacksonville, Fla	F. J. Waas	1,191	......	31	16	2	7/1	1-2	100.00
Jackson	Miami, Fla	......	3,921	8,370	188	81	7	7/1	1	60.00
Crawfor	Atlanta, Ga	C. E. Rushin	2,917	130	27	16	7	7/1	1-3	75.00
Georgia Baptist Hospital★	Atlanta, Ga	T. C. Davison	1,273	......	29	8	3	7/1	1-2	75.00
Grady Memorial Hospital★[4]	Atlanta, Ga	I. Ferguson	3,693	37,800	195	59	26	7/1	1	20.00
Piedmont Hospital★[4]	Atlanta, Ga	F. W. McRae	2,664	......	11	3	1	....	1-2	......
St. Joseph's Infirmary★	Atlanta, Ga	W. P. Nicolson	2,964	1,410	41	19	3	7/1	1-3	60.00
University Hospital★[4]	Augusta, Ga	J. H. Sherman	2,208	2,080	54	7	7	7/1	1-4	40.00
Emory University Hospital★	Emory University, Ga	D. C. Elkin	2,070	......	37	17	8	7/1	1	50.00
†American Hospital★[4]	Chicago	M. Thorek	......	......	...	...	1	4/1	1-2	50.00
Augustana Hospital★	Chicago	N. M. Percy	1,819	3,743	32	15	3	7/1	1-3	50.00
Chicago Memorial Hospital★	Chicago	J. Van Prohaska	1,277	2,957	20	18	2	7/1	1-3	200.00
Children's Memorial Hospital[4]	Chicago	W. J. Potts	828	3,743	8	6	1	1/1, 7/1	1	50.00
Cook County Hospital★[4]	Chicago	K. A. Meyer	17,285	9,430	1,130	...	19	1/1, 7/1	1-3	27.50
Grant Hospital★[4]	Chicago	L. Seed	......	......	...	...	3	7/1	1-3	125.00
Henrotin Hospital★[4]	Chicago	J. A. Graham	1,243	......	11	5	1	7/1	1-2	100.00
Hospital of St. Anthony de Padua★	Chicago	F. B. Olentine	1,411	......	18	2	1	2/1, 6/1	1	150.00
†Illinois Central Hospital★	Chicago	W. W. Leake	684	......	20	4	1	1/1	3	150.00
Illinois Masonic Hospital★[4]	Chicago	P. Shambaugh	1,246	......	61	23	2	....	1	......
Hospital★	Chicago	......	4,587	......	39	14	1	....	1	......
linics★	Chicago	J. B. O'Donoghue	2,295	1,077	111	52	5	7/1	3	25.00
	Chicago	N. Crohn	2,384	3,012	70	36	5	7/1	1-3	25.00
	Chicago	D. Willis	1,479	1,819	23	15	3	7/1	1-3	50.00
	Chicago	W. Johnson	1,030	......	13	1	2	7/1	1	25.00
	Chicago	L. Davis	1,787	......	49	32	6	....	1	......
	Chicago	V. C. David	2,637	3,057	51	30	9	Varies	3	25.00
	Chicago	U. G. Dailey	1,066	1,074	33	25	4	7/1	3	25.00
Ravenswood Hospital★	Chicago	E. F. Fox	2,314	2,301	68	40	3	1/1	1½-2	50.00
Research and Educational Hospitals★	Chicago	W. H. Cole	822	8,603	44	38	4	7/1	1-3	55.00
St. Anne's Hospital★	Chicago	P. F. Fox	3,322	......	64	27	1	6/1	1½-3	125.00
St. Elizabeth Hospital★	Chicago	M. G. Luken	1,416	......	14	4	2	....	3	60.00
St. Joseph Hospital★[4]	Chicago	H. McKenna	853	674	11	3	2	7/1	1-3	75.00
St. Luke's Hospital★[4]	Chicago	H. E. Jones	3,335	731	117	67	8	....	1-3	......
St. Mary of Nazareth Hospital★	Chicago	T. Larkowski	2,436	7,308	62	34	3	....	1	125.00
linics★	Chicago	L. R. Dragstedt	1,725	15,701	69	45	11	7/1	4-6	25.00
tal★[4]	Chicago	R. W. McNealy	2,305	......	23	8	10	1/1, 7/1	1-3½	25.00
Hospital★[4]	Chicago	M. Williams	256	532	7	5	1	1/1, 7/1	1-3	75.00
	Chicago	......	1,062	......	13	6	1	....	1	......
	Evanston, Ill.	F. Christopher	1,227	4,002	27	19	2	....	3	50.00
	Evanston, Ill.	C. E. Pope	2,623	......	79	56	3	7/1	1	75.00
Little Company of Mary Hospital★	Evergreen Park, Ill.	R. J. Bennett	4,584	......	31	7	2	12/1	1	100.00
St. Francis Hospital★[4]	Peoria, Ill.	C. D. Branch	1,603	5,458	34	18	2	1/1, 4/1	1-2	150.00
Indianapolis General Hospital★	Indianapolis	F. W. Taylor	1,112	4,360	65	26	5	....	1	......
Indiana University Medical Center★[4]	Indianapolis	W. D. Gatch	1,535	5,281	89	40	7	7/1	2-3	33.33
Methodist Hospital★	Indianapolis	W. E. Gabe	4,030	......	79	38	4	7/1	1-3	200.00
†St. Vincent's Hospital★	Indianapolis	K. R. Ruddell	1,654	......	25	11	2	1/1	3	200.00
†St. Elizabeth Hospital★	LaFayette, Ind.	F. A. Loop	971	......	19	8	3	10/1	1-3	100.00
Ball Memorial Hospital★[4]	Muncie, Ind.	......	3,208	......	90	30	4	7/1	1	100.00
Iowa Methodist Hospital★	Des Moines, Iowa	J. B. Priestley	2,519	......	52	30	2	7/1	1-3	75.00
University Hospitals★[4]	Iowa City	R. Tidrick	2,901	4,430	104	71	17	7/1	1	50.00
St. Margaret's Hospital★[4]	Kansas City, Kan.	M. V. Laing	1,961	......	30	17	3	7/1	3	50.00
University of Kansas Hospitals★[4]	Kansas City, Kan.	......	897	3,483	30	28	4	....	1	......
St. Francis Hospital★	Wichita, Kan.	A. P. Gearhart	2,980	......	86	37	3	7/1	1	......
Wesley Hospital★[4]	Wichita, Kan.	A. E. Hiebert	1,675	......	24	11	1	2/1	1-3	150.00
St. Joseph's Hospital★	Lexington, Ky.	F. W. Rankin	2,327	......	78	25	4	7/1	1-3	90.00
Louisville General Hospital★	Louisville, Ky.	R. A. Griswold	1,245	12,037	66	24	17	7/1	1	45.00
Norton Memorial Infirmary★	Louisville, Ky.	C. H. Maguire	3,214	......	43	21	3	7/1	1-2	75.00
	Louisville, Ky.	I. Abell, Sr.	5,042	......	109	43	4	7/1	1-4	75.00
	New Orleans	......	8,026	35,111	309	112	27	7/1	1-4	25.00
	New Orleans	A. Ochsner	513	25,794	17	8	18	Varies	3	150.00
	New Orleans	J. A. Danna	8,117	1,072	49	15	2	....	1	......
	New Orleans	S. Lyons	2,406	......	29	26	1	7/1	1-3	150.00
	New Orleans	J. D. Rives	3,482	6,316	71	37	5	7/1	1	17.50
	Shreveport, La.	J. E. Heard	2,129	5,403	88	35	7	7/1	1-3	60.00
Maine General Hospital★	Portland, Me.	I. M. Webber	1,695	2,117	55	24	6	....	1+	......
Baltimore City Hospitals★[4]	Baltimore	T. B. Aycock	2,398	3,497	160	61	6	7/1	1	35.00
Bon Secours Hospital★	Baltimore	G. Stewart	927	1,295	5	2	3	4/1	1-3	75.00
Church Home and Hospital★[4]	Baltimore	T. S. Cullen	3,503	1,053	52	24	4	7/1	1	35.00
Franklin Square Hospital★	Baltimore	H. E. Wilgas	1,482	5,427	19	6	5	7/1	1-4	75.00
Hospital for Women★[4]	Baltimore	W. Rienhoff	863	1,818	2	...	5	7/1	1	85.00
Johns Hopkins Hospital★	Baltimore	A. Blalock	3,344	19,582	132	90	10	....	1-4+	......
Maryland General Hospital★[4]	Baltimore	R. F. Chenowith	2,663	2,005	81	17	13	7/1	1-4	50.00
Mercy Hospital★	Baltimore	......	2,455	......	62	18	5	....	1	50.00
Provident Hospital and Free Dispensary★[4]	Baltimore	S. McLanahan	1,095	1,037	53	...	5	....	1	......
St. Agnes Hospital★	Baltimore	G. A. Stewart	1,310	364	30	10	6	....	1	......
St. Joseph's Hospital★	Baltimore	W. R. Geraghty	2,154	3,341	68	26	5	7/1	3	50.00
	Baltimore	H. M. Kern	2,170	......	40	21	6	7/1	1-4	25.00
	Baltimore	O. S. Lloyd	2,289	3,562	56	13	7	7/1	1-4	75.00
	Baltimore	J. M. T. Finney, Jr.	......	......	...	...	9	7/1	1	......
	Baltimore	A. M. Shipley	2,487	9,534	80	30	9	7/1	1-2	75.00
	Baltimore	N. C. Marvel	1,420	1,822	...	...	4	....	1-3	......
	Bethesda, Md.	A. L. Riddick	1,137	615	16	4	1	7/1	1	100.00
	Beverly, Mass.	P. P. Johnson	2,182	3,661	36	27	4	....	2-3	50.00
	Boston	C. G. Mixter	3,089	11,391	76	43	8	7/1	1	41.66
	Boston	R. C. Cochrane	10,109	100,148	512	88	10	....	1-2	66.67
Carney Hospital★	Boston	......	1,904	5,122	61	17	5	7/1	1-4	50.00
Children's Hospital★[4]	Boston	R. Gross	2,026	11,674	45	33	7	Varies	1	41.67
Lahey Clinic	Boston	F. H. Lahey	......	......	...	...	18	Varies	1-2	......
Massachusetts General Hospital★	Boston	E. D. Churchill and A. W. Allen	4,665[b]	16,540[b]	...	...	35	7/1	1-3	......
Massachusetts Memorial Hospitals★[4]	Boston	R. H. Smithwick	2,818	2,224	38	18	7	7/1, 10/1	1	50.00

Numerical and other references will be found on page 89

25. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[1]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
New England Hospital for Women and Children★[1]	Boston	G. Rochford	1,319	1,281	7	4	3	1/1	1	$ 50.00
Peter Bent Brigham Hospital★	Boston	W. C. Quinby	2,801	27,773	90	61	11	Varies	1	.....
St. Elizabeth's Hospital★	Boston	F. W. Spellman	1,788	2,553	50	14	5	7/1	1-4	75.00
Cambridge City Hospital★	Cambridge, Mass.	L. J. O'Brien, Jr.	1,815	9,092	101	46	1	7/1	1	60.00
Mount Auburn Hospital★[1]	Cambridge, Mass.	S. Fraser	1,989	1,520	47	21	2	7/1	1	50.00
Truesdale Hospital★[1]	Fall River, Mass.	W. G. Atwood	1,709	612	23	11	4	1/1, 7/1	1	50.00
†Malden Hospital	Malden, Mass.	W. E. Garrey	1,326	.	*31	10	2	7/1	1-2	100.00
Newton-Wellesley Hospital★[1]	Newton, Mass.	R. I. Smith	2,883	1,778	66	18	2	.....	3	100.00
Cooley Dickinson Hospital	Northampton, Mass.	T. F. Corriden	3,605	..	.		1	7/1	1	50.00
Salem Hospital★[1]	Salem, Mass.	W. G. Phippen	2,163	1,865	42	.	1	.....	1	50.00
Memorial Hospital★[1]	Worcester, Mass.	B. Alton	3,019	670	50	26	1	.....	1	125.00
St. Vincent Hospital★	Worcester, Mass.	J. M. Fallon	2,532	.	58	22	4	7/1	1-4	41.67
Worcester City Hospital★	Worcester, Mass.	H. L. Andrews	2,988	3,669	92	40	2	4/1	....	50.00
St. Joseph's Mercy Hospital★	Ann Arbor, Mich.	...	911	8,279	31	11	3	1/1, 7/1	2-3	125.00
University Hospital★[1]	Ann Arbor, Mich.	F. A. Coller	2,727	13,119	92	51	22	7/1	1-5	111.40
Leila Y. Post Montgomery Hospital★	Battle Creek, Mich.	R. L. Mustard	877	2,925	4	2	4	7/1	1-3	200.00
Alexander Blain Hospital[1]	Detroit	A. W. Blain and J. H. Blain	1,027	11,721	16	9	8	7/1	1-5	100.00
Charles Godwin Jennings Hospital★	Detroit	J. B. Hartzell	1,011		12	10	1	7/1	1-3	200.00
City of Detroit Receiving Hospital★[1]	Detroit	C. G. Johnston	3,182	19,758	120	39	15	7/1	1+	167.00
Evangelical Deaconess Hospital★	Detroit	E. C. Baumgarten		.		.	3	7/1	1-3	200.00
Grace Hospital★	Detroit	C. S. Kennedy	2,182	964	57	27	6	7/1	1-4	75.00
Harper Hospital★[1]	Detroit	W. D. Barrett	4,558	4,051			22	7/1	1	118.00
Henry Ford Hospital★[1]	Detroit	R. D. McClure	3,161	31,787	78	38	22	7/1	1-5	200.00
Mount Carmel Mercy Hospital★	Detroit	L. J. Gariepy	6,445	.	79	21	9	7/1	1-4	100.00
Providence Hospital★	Detroit	R. Bookmeyer	3,876	....	85	44	4	7/1	1-3	140.00
St. Mary's Hospital★[1]	Detroit	G. K. Glascow	4,879	.	50	31	2	7/1	3	..
Woman's Hospital★[1]	Detroit	W. E. Johnston	1,699	..	20	10	2	7/1	3	125.00
Wayne County General Hospital and Infirmary★[1]	Eloise, Mich.	R. V. Walker	3,549	8,756	109	48	8	7/1	1	216.25
Hurley Hospital★	Flint, Mich.	A. H. Kretchmar	1,877	.	45	29	2	10/1	3	135.00
Blodgett Memorial Hospital★	Grand Rapids, Mich.	J. D. Miller	1,169	...	26	18	3	7/1	3	175.00
Butterworth Hospital★[1]	Grand Rapids, Mich.	D. Chandler	2,148	401	57	27	3	7/1	3	100.00
St. Mary's Hospital★	Grand Rapids, Mich.	J. W. Logie	3,201	609	82	21	3	....	3	125.00
Highland Park General Hospital★[1]	Highland Park, Mich.	F. Witter	1,307	.	26	7	3	7/1	1	150.00
Bronson Methodist Hospital★	Kalamazoo, Mich.	H. C. Jackson	2,052	2,147	58	23	3	7/1	1-3	150.00
Pontiac General Hospital★	Pontiac, Mich.	C. T. Ekelund	850	3,595	10	4	3	7/1	1-3	75.00
Saginaw General Hospital★	Saginaw, Mich.	H. M. Bishop	1,129	..	20	9	2	7/1	1-3	75.00
St. Luke's Hospital★	Duluth, Minn.	P. S. Rudie	1,600	....	39	30	1	7/1	1	100.00
St. Mary's Hospital★	Duluth, Minn.	A. J. Bianco	1,706	....	45	35	1	......	1	.....
Lutheran Deaconess Home and Hospital	Minneapolis	G. S. Bergh	3,257	...	21	14	2	1/1, 7/1	1	175.00
Minneapolis General Hospital★[1]	Minneapolis	A. A. Zierold	919	7,221	75	21	12	1/1, 7/1	1-3	115.00
Northwestern Hospital★[1]	Minneapolis	H. Fowler	1,591	....	17	9	2	7/1	1	150.00
†St. Barnabas Hospital★[1]	Minneapolis	C. O. Rice	1,354		36	26	2	1/1, 7/1	1	100.00
Swedish Hospital★	Minneapolis	H. G. Scott	...		.	.	3	7/1	1-3	125.00
University Hospitals★[1]	Minneapolis	O. H. Wangensteen	1,270	7,286	73	62	27	7/1	1-3	115.00
Mayo Foundation	Rochester, Minn.	D. C. Balfour	(See page	89)	...	.	135	......	1-3	.....
Ancker Hospital★	St. Paul	A. R. Colvin	1,227	3,093	101	86	4	1/1	3	91.50
Charles T. Miller Hospital★	St. Paul	H. B. Zimmermann	2,489	2,053	21	16	2	Varies	1-3	115.00
Vicksburg Hospital	Vicksburg, Miss.	W. H. Parsons	821	....	5	2	3	7/1	3-5	.....
St. Louis County Hospital★	Clayton, Mo.	L. Will	1,163	9,022	71	36	4	7/1	1-3	80.00
Ellis Fischel State Cancer Hospital[1]	Columbia, Mo.	J. J. Modlin	1,116	5,058	46	38	11	7/1	1-2	50.00
Kansas City General Hospital No. 1★	Kansas City, Mo.	C. B. Schutz	1,063	3,831	87	35	6	7/1	2-4	50.00
Menorah Hospital★	Kansas City, Mo.	O. J. Printz	921	....	12	4	1	7/1	3	200.00
Research Hospital★[1]	Kansas City, Mo.	C. J. Hunt	1,398	474	36	20	2	7/1	1-3	100.00
St. Joseph Hospital★	Kansas City, Mo.	R. R. Coffey	....	....	..	...	3	....	1-3	100.00
St. Luke's Hospital★	Kansas City, Mo.	C. B. Schutz	.	....	.	.	1	7/1	1-3	75.00
St. Mary's Hospital★[1]	Kansas City, Mo.	J. E. Castles	3,055	..	41	24	2	7/1	1	100.00
Barnes Hospital★	St. Louis	E. A. Graham	1,946	6,838	72	54	20	7/1	1-5	25.00
De Paul Hospital	St. Louis	H. A. Hassett	1,691	152	54	6	3	7/1	3	60.00
Homer G. Phillips Hospital★	St. Louis	R. Elman	1,930	5,778	151	16	6	7/1	1	50.00
Jewish Hospital★[1]	St. Louis	J. G. Probstein	2,013	. .	58	20	2	......	1	..
Missouri Baptist Hospital★	St. Louis	J. A. Forsen	2,499	.	..	..	5	7/1	1-3	60.00
Missouri Pacific Hospital	St. Louis	O. B. Zeinert	1,255	12,997	15	1	4	7/1	1-3	125.00
St. Anthony's Hospital★	St. Louis	F. Tainter	3,121	..	35	19	1	......	1	...
St. John's Hospital★	St. Louis	W. P. Glennon	2,785	1,108	64	17	3	7/1	1-3	50.00
St. Louis City Hospital★[1]	St. Louis	......	3,504	7,544	272	110	15	7/1	1	95.00
St. Luke's Hospital★	St. Louis	G. L. Krause	2,251	..	.	..	3	7/1	1	75.00
St. Mary's Group of Hospitals★	St. Louis	J. W. Stewart	2,636	8,089	87	45	7	Varies	3	35.00
Montana Deaconess Hospital★	Great Falls, Mont.	L. L. Howard	857	219	3	1	1	....	1-2	...
Bishop Clarkson Memorial Hospital★	Omaha	R. R. Best	1,005	...	23	8	1	....	1	....
Creighton Memorial St. Joseph's Hosp.★[1]	Omaha	C. McMartin	5,443	2,296	52	30	1	....	1	....
Nebraska Methodist Hospital★[1]	Omaha	C. W. McLaughlin	1,988	....	41	22	1	7/1	1	100.00
University of Nebraska Hospital★[1]	Omaha	J. J. Keegan	389	.	23	23	8	7/1	1-3	75.00
Atlantic City Hospital★	Atlantic City, N. J.	H. I. Silvers	4,019	22,939	127	44	1	7/1	1	.
Cooper Hospital★	Camden, N. J.	I. E. Deibert	2,057	5,705	101	61	3	....	1-3	83.33
[illegible]	Camden, N. J.	H. W. Jack	1,686	2,592	60	44	3	7/1	2	150.00
[illegible]	Hackensack, N. J.	A. I. Mader, Jr.	2,718	7,785	51	.	1	7/1	1	100.00
[illegible]	Jersey City, N. J.	E. Burke	2,958	23,111	140	23	4	Varies	1-5	35.00
[illegible]	Montclair, N. J.	R. G. Stewart	3,023	3,436	114	41	2	7/1	1+	50.00
[illegible]	Mount Holly, N. J.	T. J. Summey	1,039	1,751	26	13	2	7/1	1-3	100.00
Fitkin Memorial Hospital★[1]	Neptune, N. J.	O. K. Parry	1,307	2,747	27	13	2	7/1	1	50.00
Hospital of St. Barnabas and for Women and Children★	Newark, N. J.	C. A. Beling	2,445[b]	3,613[b]	...	..	3	7/1	3	....
Newark Beth Israel Hospital★	Newark, N. J.	H. Comando	2,745	1,019	92	29	2	1/1	3	25.00
Presbyterian Hospital	Newark, N. J.	E. W. Sprague	4,494	166	58	20	4	1/1	1-2	200.00
Paterson General Hospital★	Paterson, N. J.	....	2,629	1,130	102	27	1	7/1	1	100.00
†St. Francis Hospital★	Trenton, N. J.	L. S. Sica	4,048	.....	125	31	1	....	1	100.00
Albany Hospital★[1]	Albany, N. Y.	E. H. Campbell	2,317	3,147	61	25	5	....	1	41.66
Binghamton City Hospital★[1]	Binghamton, N. Y.	H. Sneierson	4,110	....	80	36	7	7/1	1-3	60.00
Beth Moses Hospital★[1]	Brooklyn	....	(See Maimonides Hospital)							
Brooklyn Hospital★[1]	Brooklyn	W. H. Field	2,248	5,288	58	29	8	7/1	1-4	25.00
Coney Island Hospital★[1]	Brooklyn	J. E. Hammett	2,450	12,355	113	28	3	1/1, 7/1	1	70.00
Cumberland Hospital★[1]	Brooklyn	J. J. Gainey	2,591	13,637	114	20	3	7/1	1	70.00
Greenpoint Hospital★[1]	Brooklyn	J. Smith, Jr.	1,313	9,365	64	19	2	4/1	1	120.00
Jewish Hospital★[1]	Brooklyn	....	2,887	858	58	17	4	....	4	30.00
Kings County Hospital★	Brooklyn	J. Tenopyr and J. Browder	10,798	39,053	641	114	5	1/1, 7/1	1-3	50.00
Long Island College Hospital★[1]	Brooklyn	E. Goetsch	2,485	9,864	35	15	4	7/1	1-6	25.00

Numerical and other references will be found on page 89

25. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Maimonides Hospital Beth Moses Division★[1]	Brooklyn	I. E. Siris and H. M. Rabinowski	2,617	2,095	53	10	3	7/1	1	$100.00
Methodist Hospital★[4]	Brooklyn	H. K. Bell and P. A. Renaud	2,074	4,428	54	19	5	7/1	4	25.00
Norwegian Lutheran Deaconesses' Home and Hospital★[1]	Brooklyn	......	...	....	...	...	1	....	1	......
St. Catherine's Hospital★	Brooklyn	......	1,787	3,235	51	11	2	7/1	3	125.00
St. John's Hospital★	*Brooklyn*	*M. N. Foote*	1,683	.....	37	17	3	7/1	1-3	95.00
St. Mary's Hospital★	Brooklyn	T. M. Brennan	1,188	3,625	46	8	1	7/1	1	60.00
Buffalo General Hospital★[4]	Brooklyn	J. R. Paine	2,700	1,868	79	30	7	7/1	1-4	25.00
Children's Hospital	Buffalo	W. L. Machemer	721	.....	10	10	2	Varies	1	25.00
Deaconess Hospital★	Buffalo	...	4,398	1,329	75	29	5	....	1-3	60.00
Edward J. Meyer Memorial Hospital★[1]	Buffalo	J. D. Stewart	1,431	2,766	192	104	11	Varies	5	100.00
Millard Fillmore Hospital★	Buffalo	H. N. Kenwell	2,151	......	11	4	7	....	1-4	50.00
Mary McClellan Hospital	Cambridge, N. Y.	...	907	4,370	39	18	1	7/1	1	......
Clifton Springs Sanitarium and Clinic	Clifton Springs, N. Y.	W. C. Eikner and R. M. Price	1,056	2,800	27	18	2	....	1-3	......
Mary Imogene Bassett Hospital★	Cooperstown, N. Y.	M. A. McIver	690	5,175	.	...	2	7/1	1-3	83.33
Meadowbrook Hospital★	Hempstead, N. Y.	A. S. Warinner	1,032	....	59	41	2	1/1, 7/1	1-2	115.00
Jamaica Hospital★[4]	Jamaica, N. Y.	J. D. Hallinan	..	....	.	...	2	7/1	1-3	175.00
Mary Immaculate Hospital★	Jamaica, N. Y.	F. N. Dealy	703	826	15	3	1	....	1-3	......
Queens General Hospital★[4]	Jamaica, N. Y.	C. L. Davidson	2,962	7,569	311	137	3	7/1	3	70.00
Charles S. Wilson Memorial Hospital★[4]	Johnson City, N. Y.	F. G. Moore	3,421	....	33	13	5	7/1	1-3	200.00
†Mount Vernon Hospital★	Mount Vernon, N. Y.	N. W. Cornell	1,904	613	30	8	2	7/1	1-2	125.00
New Rochelle Hospital★	New Rochelle, N. Y.	G. C. Adie	1,822	2,418	40	17	3	7/1	1-3	100.00
Bellevue Hosp. Div. I—Columbia Univ.★[4]	New York City	F. B. Berry	2,339[b]	10,738[b]	98[b]	36[b]	5	1/1, 7/1	3	70.00
Bellevue Hosp. Div. II—Cornell Univ.★[4]	New York City	G. S. Dudley	2,300[b]	11,213[b]	81[b]	37[b]	3	7/1	1	70.00
Bellevue Hosp. Div. III—N. Y. Univ.★[4]	*New York City*	*J. H. Mulholland*	2,396[b]	10,035[b]	88[b]	32[b]	8	7/1	4	70.00
Bellevue Hosp. Div. IV—Open Division★[4]	New York City	A. S. McQuillan	2,258[b]	9,116[b]	84[b]	47[b]	6	7/1	1	70.00
Beth Israel Hospital★[4]	New York City	L. Ginzburg	1,210	3,087	33	11	4	7/1	1-4	50.00
Bronx Hospital★[4]	New York City	S. Cohn	3,970	13,271	73	12	6	7/1	1-3	75.00
Flower and Fifth Avenue Hospitals★[4]	New York City	J. M. Winfield	1,967	4,860	37	6	11	6/1	1	......
Fordham Hospital★[4]	New York City	L. Marton	......	.....	..	...	4	....	1	......
†French Hospital★[4]	New York City	H. B. Keyes	2,137	3,218	30	9	3	10/1	3	......
Gouverneur Hospital★[4]	New York City	F. J. McGowan	745	10,257	53	3	3	7/1	1	70.00
Harlem Hospital★[4]	New York City	L. T. Wright	3,951	18,470	248	28	10	1/1, 7/1	1-4	45.00
Hospital for Special Surgery	New York City	F. Beekman	1,508	2,760	14	6	3	Varies	1	50.00
Knickerbocker Hospital★	New York City	R. H. Patterson	......	....	...	...	3	7/1	1+	110.00
Lenox Hill Hospital★[4]	New York City	O. C. Pickhardt and F. M. Donehue	2,574	......	76	29	6	Varies	1-3	50.00
†Lincoln Hospital★[4]	New York City	F. H. Amendola	4,294	17,501	174	39	8	7/1	1-3	60.00
Metropolitan Hospital★[4]	New York City	J. M. Winfield	1,481	5,355	158	32	5	....	1	70.00
Montefiore Hospital for Chronic Diseases★[4]	New York City	S. Standard	457	....	57	20	3	1/1, 7/1	1	50.00
Morrisania City Hospital★[4]	New York City	G. Milani and P. Daly	1,084	5,243	51	20	2	7/1	2	60.00
Mount Sinai Hospital★[4]	New York City	......	......	....	...	..	21	1/1, 7/1	1-2	50.00
New York City Hospital★[4]	New York City	L. W. Crossman	2,091	7,784	139	41	5	7/1	1-3	70.00
New York Hospital★[4]	New York City	F. Glenn	3,517	38,769	88	66	27	1/1, 7/1	1-7	25.00
New York Infirmary★[4]	New York City	A. Hubert	531	2,169	7	6	2	7/1	1	75.00
New York Polyclinic Medical School and Hospital★	New York City	R. E. Brennan	1,813	....	39	10	12	7/1	3	25.00
New York Post-Graduate Medical School and Hospital★	New York City	J. W. Hinton	3,655	6,171	107	32	22	Varies	1-2	30.00
Presbyterian Hospital★[1]	New York City	G. H. Humphreys	3,448	47,781	117	...	18	....	1-4	41.66
Roosevelt Hospital★[4]	New York City	H. W. Cave and *W. C. White*	*3,606*	*8,240*	*133*	*30*	*14*	*7/1*	*1-3*	70.00
St. Clare's Hospital★[4]	New York City	W. V. Healey	3,091	2,203	72	37	4	7/1	3	25.00
St. Luke's Hospital★	New York City	W. F. MacFee	3,180	18,018	106	40	12	Varies	1-5	50.00
St. Vincent's Hospital★[1]	New York City	G. R. Stuart	1,924	3,856	57	15	3	7/1	1-3	50.00
†Sydenham Hospital★[4]	New York City	J. B. Stenbuck	1,739	5,650	43	6	2	7/1	1	75.00
Genesee Hospital★[1]	Rochester, N. Y.	S. J. Stabins	1,851	1,170	59	28	4	7/1	1	41.66
Highland Hospital★[4]	Rochester, N. Y.	W. A. Calihan	1,810[b]	329[b]	...	...	4	....	1-2	100.00
Rochester General Hospital★[4]	*Rochester, N. Y.*	*W. A. Fenstermacher*	*3,293*	*3,649*	*52*	*41*	*6*	*7/1*	*1-3*	70.00
St. Mary's Hospital★[4]	Rochester, N. Y.	L. F. Simpson	2,901	....	23	20	6	7/1	1-3	125.00
Strong Memorial—Rochester Municipal Hospitals★[4]	Rochester, N. Y.	J. J. Morton	2,430	12,022	150	106	14	7/1	1-4	41.66
†Ellis Hospital★[4]	Schenectady, N. Y.	A. Grussner	4,348	.....	95	32	2	7/1	1-3	100.00
Hospital of the Good Shepherd★	Syracuse, N. Y.	A. B. Raffl	3,240	.....	63	33	4	....	1-2	125.00
Grasslands Hospital★[4]	Valhalla, N. Y.	G. C. Adie	417	2,179	34	21	4	7/1	1-3	75.00
†White Plains Hospital★[4]	White Plains, N. Y.	E. G. Ramsdell	......	.....	..	...	1	7/1	1-3	100.00
Charlotte Memorial Hospital★[4]	Charlotte, N. C.	T. D. Sparrow	1,633	4,389	40	17	2	7/1	1-3	75.00
Duke Hospital★[4]	Durham, N. C.	D. Hart	2,207	8,080	29	13	20	7/1	1	83.33
Watts Hospital★	Durham, N. C.	W. B. McCutcheon	2,746	748	31	14	5	7/1	1-4	50.00
Rutherford Hospital	Rutherfordton, N. C.	R. H. Crawford	856	5,537	8	2	1	....	2-3	......
James Walker Memorial Hospital★[4]	Wilmington, N. C.	......	3,246	6,238	49	12	2	7/1	1-3	75.00
City Memorial Hospital★	Winston-Salem, N. C.	J. F. Marshall	....	2,656	19	7	3	7/1	1-2	75.00
North Carolina Baptist Hospital★[4]	Winston-Salem, N. C.	H. H. Bradshaw	1,197	4,478	19	11	11	....	1-3	......
Bismarck Evangelical Hospital	Bismarck, N. D.	N. O. Ramstad	821	....	7	2	1	Varies	1	115.00
St. Luke's Hospital★[4]	Fargo, N. D.	V. G. Borland	644	......	6	4	1	7/1	1	100.00
Trinity Hospital★	Minot, N. D.	A. L. Cameron	649	4,269	...	..	1	....	1	......
Children's Hospital	Akron, Ohio	......	752	127	16	8	1	7/1	1-2	95.00
City Hospital★	Akron, Ohio	......	3,057	.....	75	55	9	7/1	1-4	100.00
Peoples Hospital★	*Akron, Ohio*	*R. T. Allison, Jr.*	*1,376*	*308*	*17*	*3*	*3*	*7/1*	1-4	100.00
St. Thomas Hospital★	Akron, Ohio	A. F. Dorner	2,221	643	17	9	4	7/1	1	125.00
Aultman Hospital★	Canton, Ohio	L. L. Lawrence	3,787	....	84	62	9	7/1	1-4	75.00
Mercy Hospital★	Canton, Ohio	A. W. Warren	2,977	.....	70	19	7	7/1	1-3	100.00
Christ Hospital★	Cincinnati	P. W. Sutton	1,930	3,383	81	24	5	7/1	1-3	75.00
Cincinnati General Hospital★	Cincinnati	B. N. Carter	3,348	16,599	310	122	22	7/1	1-6	......
Deaconess Hospital★[4]	Cincinnati	......	2,747	....	50	11	2	4/1, 10/1	1-2	75.00
Good Samaritan Hospital★	*Cincinnati*	*J. J. Maloney*	*8,112*	*1,476*	*61*	*38*	*8*	*7/1*	1-3	105.00
Jewish Hospital★	Cincinnati	J. D. Heiman	6,033	.....	61	36	7	7/1	1-4	75.00
St. Mary's Hospital★	Cincinnati	K. B. Hanson	1,248	730	29	11	3	7/1	1-3	105.00
City Hospital★[4]	Cleveland	C. H. Lenhart	2,664	13,792	143	86	18	7/1	1-4	60.00
Cleveland Clinic Foundation Hospital	Cleveland	T. E. Jones	2,687	21,964	39	18	18	7/1	1-3	100.00
Fairview Park Hospital★	Cleveland	H. W. Masenhimer	1,186	519	18	4	3	7/1	1	100.00
Lutheran Hospital★[4]	Cleveland	F. S. Gibson	2,794	....	54	26	4	....	1-2	......
Mount Sinai Hospital★	Cleveland	S. O. Freedlander	2,033	1,328	47	22	3	7/1	1	100.00
St. Alexis Hospital★	Cleveland	E. A. Nastics	6,277	2,383	112	45	6	7/1	1-3	75.00
St. John's Hospital★	Cleveland	J. R. Ripton	1,886	386	54	21	4	7/1	1+	......
St. Luke's Hospital★	Cleveland	D. M. Glover	2,702	2,494	82	39	4	6/1	4	60.00
St. Vincent Charity Hospital★	Cleveland	H. B. Wright	1,387	9,340	22	14	9	....	1	75.00
University Hospitals★[4]	Cleveland	C. H. Lenhart	3,829	9,339	106	3	16	7/1	1+	25.00

Numerical and other references will be found on page 89

25. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Mount Carmel Hospital★[4]	Columbus, Ohio	W. H. Teachnor	3,221	...	74	22	1	1/1	1-2	$135.00
St. Francis Hospital★	Columbus, Ohio	J. B. Harris	1,680	.	101	28	3	...	1	
Starling-Loving University Hospital★[4]	Columbus, Ohio	R. M. Zollinger	1,525	5,703	100	60	17	7/1	1-3	50.00
†White Cross Hospital★	Columbus, Ohio	R. E. S. Young	2,175	171	42	9	1	...	1-2	100.00
Miami Valley Hospital★	Dayton, Ohio	F. H. Miller	3,015b	1,094b	.	.	3	7/1	1-3	
Huron Road Hospital★[4]	East Cleveland, Ohio	H. W. Brown	2,809	370	57	23	6	7/1	1	80.00
Mercy Hospital★[4]	Hamilton, Ohio	G. T. Riggs	2,231	176	64	14	3	...	1-3	50.00
Lakewood Hospital★	Lakewood, Ohio	C. L. Graber	2,739	502	42	19	3	7/1	1-2	100.00
Maumee Valley Hospital★	Toledo, Ohio	E. J. McCormick	1,522	3,194	96	42	2	7/1	1	150.00
Mercy Hospital★	Toledo, Ohio	T. F. Heatley	4,881	...	63	38	1	7/1	3	110.00
St. Vincent's Hospital★[4]	Toledo, Ohio	J. M. Douglass	3,707	697	77	42	3	7/1	1-3	100.00
St. Elizabeth's Hospital★[4]	Youngstown, Ohio	L. G. Coe	1,687	260	30	3	4	7/1	1	110.00
Youngstown Hospital★	Youngstown, Ohio	A. E. Brant	3,685	769	81	38	3	7/1	1-2	100.00
St. Anthony Hospital★	Oklahoma City	R. M. Howard	6,211	.	105	32	3	7/1	1-2	75.00
University Hospitals★	Oklahoma City	C. E. Clymer	1,056	3,239	61	23	4	7/1	1-3	35.00
Hillcrest Memorial Hospital★	Tulsa, Okla	A. B. Carney	2,281	1,356	69	15	3	7/1	1-3	75.00
St. John's Hospital★[4]	Tulsa, Okla	D. L. Garrett	1,190	..	33	9	1	Varies	1-4	125.00
Emanuel Hospital★[4]	Portland, Ore	R. Mangels	1,532	...	11	3	2	7/1	1-3	75.00
Good Samaritan Hospital★	Portland, Ore	M. McKirdie	2,072	...	36	11	1	7/1	1-2	75.00
†Portland Sanitarium and Hospital★	Portland, Ore	W. B. Holden	927	...	11	13	1	7/1	1	139.00
Providence Hospital★	Portland, Ore	L. P. Gambee	3,021	...	60	30	3	7/1	1-3	75.00
University of Oregon Medical School Hospitals and Clinics★[4]	Portland, Ore.	W. K. Livingston	1,090	5,484	71	42	5	7/1	3	75.00
Abington Memorial Hospital★	Abington, Pa	D. B. Pfeffer	2,169	2,321	73	33	3	7/1	3	50.00
Allentown Hospital★[4]	Allentown, Pa	R. L. Schaeffer	2,708	2,827	93	24	2	7/1	2	100.00
Sacred Heart Hospital★	Allentown, Pa.	W. A. Hausman	3,815	11,157	128	42	2	7/1	1-3	150.00
St. Luke's Hospital★[4]	Bethlehem, Pa.	W. L. Estes, Jr.	2,630	399	84	37	3	7/1	1-2	100.00
Bradford Hospital	Bradford, Pa	C. Smith	2,951	2,161	24	15	2	...	1-3	100.00
Bryn Mawr Hospital★	Bryn Mawr, Pa	A. E. Billings	560	..	24	6	2	7/1, 8/1	1	75.00
George F. Geisinger Memorial Hospital★[4]	Danville, Pa	H. L. Foss	2,148	16,857	50	31	4	...	1-3	75.00
Hamot Hospital★	Erie, Pa	W. G. Allen	1,615	1,055	55	21	1	...	1	
St. Vincent's Hospital★	Erie, Pa	F. P. McCarthy	1,339	1,384	40	6	1	7/1	1-3	50.00
Conemaugh Valley Memorial Hospital★[4]	Johnstown, Pa	J. T. Taylor	1,801	..	96	16	1	7/1	1	150.00
St. Joseph's Hospital★	Lancaster, Pa.	J. L. Atlee, Jr.	1,648	5,027	65	33	3	7/1	3	150.00
Episcopal Hospital★[4]	Philadelphia	E. T. Crossan and I. M. Boykin	2,971	14,831	58	...	3	...	1	50.00
Frankfort Hospital★[4]	Philadelphia	B. F. Chandlee	715	1,695	50	3	1	7/1	1-2	
Germantown Dispensary and Hospital★	Philadelphia	W. B. Swartley	2,485	6,298	79	16	2	7/1	1-2	50.00
Graduate Hospital of the Univ. of Penn.★	Philadelphia	W. Bates	1,796	8,377	63	31	5	7/1	1-2	
Hahnemann Hospital★[4]	Philadelphia	W. L. Martin	4,310	...	154	73	5	1/1	1-3	50.00
Hospital of the Univ. of Pennsylvania★[4]	Philadelphia	I. S. Ravdin	3,451	3,679	55	46	16	4/1	1-5	100.00
Hospital of the Woman's Medical College of Pennsylvania★[4]	Philadelphia	L. K. Ferguson	951	4,286	15	4	2	7/1	1	50.00
Jefferson Medical College Hospital★	Philadelphia	...	3,145	9,047	151	80	14	...	1	...
Jewish Hospital★[4]	Philadelphia	...	3,916	5,985	126	57	5	7/1	1-2	50.00
Lankenau Hospital★	Philadelphia	J. M. Deaver and G. C. Engel	2,955	13,078	61	38	5	7/1	1-3	50.00
Mount Sinai Hospital★[4]	Philadelphia	B. Lipshutz and L. Kaplan	1,800	10,677	58	36	2	7/1	1-3	50.00
Pennsylvania Hospital★	Philadelphia	J. H. Gibbon, Jr., and T. J. Summey	1,790	10,167	78	35	6	4/1, 8/1	1-3	20.00
Philadelphia General Hospital★[4]	Philadelphia	...	3,268	...	165	.	6	...	1-3	70.00
Presbyterian Hospital★[4]	Philadelphia	T. E. Orr	1,306b	...	.	..	3	...	2-3	50.00
Temple University Hospital★[4]	Philadelphia	W. E. Burnett	2,232	6,732	81	29	7	7/1	3	50.00
Woman's Hospital★[4]	Philadelphia	C. M. Smyth, Jr.	843	3,095	5	3	1	7/1	3	50.00
Allegheny General Hospital★	Pittsburgh	J. C. Burt	2,014	4,899	106	12	1	9/1	2	100.00
Children's Hospital[4]	Pittsburgh	...	968	2,268	11	7	1	...	1-3	...
Mercy Hospital★[4]	Pittsburgh	H. H. Donaldson	3,745	5,470	75	28	3	9/1	1-3	100.00
Montefiore Hospital★	Pittsburgh	H. Frankenstein	1,296	1,551	42	18	3	7/1	3	50.00
Pittsburgh Hospital★[4]	Pittsburgh	J. D. Singley	1,103	1,231	76	5	1	7/1	1	50.00
Presbyterian Hospital★[4]	Pittsburgh	E. W. Meredith	2,251	...	93	31	10	...	1-5	41.67
St. Francis Hospital★[4]	Pittsburgh	...	2,611	264	62	9	3	7/1	3	110.00
Western Pennsylvania Hospital★	Pittsburgh	L. H. Landon	3,157	1,228	116	19	3	7/1	1-3	75.00
Reading Hospital★[4]	Reading, Pa.	W. A. Lebkicher	1,649	4,600	65	31	1	7/1	1-2	100.00
St. Joseph's Hospital★	Reading, Pa.	M. Z. Gearhart	793	...	36	26	1	7/1	1	...
Robert Packer Hospital★	Sayre, Pa.	D. Guthrie	1,223	4,588	30	17	3	7/1	2-3	150.00
Washington Hospital★	Washington, Pa.	W. J. L. McCullough	...	...	...	...	1	7/1	1	175.00
Mercy Hospital★[4]	Wilkes-Barre, Pa.	P. F. McHugh	1,728	907	48	18	2	7/1	1	100.00
Wilkes-Barre General Hospital★[4]	Wilkes-Barre, Pa.	S. P. Mengel	4,801	4,307	91	18	1	9/1	1	100.00
York Hospital★	York, Pa.	J. F. Bacon	1,603	1,010	94	30	1	7/1	1	200.00
Rhode Island Hospital★	Providence, R. I.	W. P. Davis	4,620	...	112	54	6	1/1	1-3	50.00
Roper Hospital★	Charleston, S. C.	F. E. Kredel	2,133	2,445	63	31	5	7/1	1-4	25.00
Columbia Hospital★	Columbia, S. C.	G. H. Bunch, Sr.	2,323	7,094	87	37	2	7/1	1-2	75.00
Baroness Erlanger Hospital★	Chattanooga, Tenn.	W. J. Sheridan	2,485	1,048	55	16	11	7/1	1	90.00
Knoxville General Hospital★[4]	Knoxville, Tenn.	C. C. Smeltzer	1,661	2,040	56	12	2	7/1	1	60.00
John Gaston Hospital★	Memphis, Tenn.	J. L. McGehee	2,160	12,142	88	47	6	7/1	1	...
Methodist Hospital★	Memphis, Tenn.	J. H. Francis	2,021	...	30	8	2	7/1	1-2	100.00
St. Joseph Hospital★[4]	Memphis, Tenn.	J. M. Aste	2,119	...	9	4	1	...	1-2	100.00
George W. Hubbard Hospital of Meharry Medical College★	Nashville, Tenn.	M. Walker	738	3,823	41	13	7	7/1	1-5	75.00
Nashville General Hospital★	Nashville, Tenn.	E. Rippy	1,436	11,633	74	23	3	7/1	1-3	40.00
St. Thomas Hospital★	Nashville, Tenn.	L. W. Edwards	4,704	...	85	34	8	7/1	1-4	75.00
Vanderbilt University Hospital★[4]	Nashville, Tenn.	B. Brooks	3,277	13,841	102	64	10	7/1	1	...
Baylor University Hospital★[4]	Dallas, Texas	H. W. Cochran	1,973	1,655	52	21	6	7/1	1-3	50.00
Methodist Hospital★	Dallas, Texas	T. Green	1,899	439	29	9	2	7/1	1	75.00
Parkland Hospital★[4]	Dallas, Texas	L. Hudson	7,155	4,412	33	15	6	7/1	1-3	50.00
St. Paul's Hospital★	Dallas, Texas	O. W. Gibbons	4,367	1,603	45	2	5	7/1	1-3	100.00
Harris Memorial Methodist Hospital★	Fort Worth, Texas	T. H. Thomason	1,148	...	15	4	2	7/1	1-3	100.00
John Sealy Hospital (Univ. Texas Medical Branch)★[4]	Galveston, Texas	R. M. Moore	1,222	4,260	43	22	9	...	1-3	50.00
Hermann Hospital★[4]	Houston, Texas	G. Waldran	1,321	1,301	38	19	3	...	1-3	50.00
Jefferson Davis Hospital★[4]	Houston, Texas	J. H. Wootters	1,651	2,902	85	18	4	7/1	1-3	50.00
Memorial Hospital[4]	Houston, Texas	L. E. Williford	5,319	...	50	16	6	...	1	
Methodist Hospital★[4]	Houston, Texas	...	776	95	12	5	2	...	1-3	...
St. Joseph Infirmary	Houston, Texas	J. P. Barnes	2,087	8,330	38	13	3	...	1-3	...
Southern Pacific Hospital	Houston, Texas	J. R. Gandy	507	5,330	4	1	2	...	1-3	150.00
Scott and White Hospital★[4]	Temple, Texas	A. C. Scott and G. V. Brindley	3,174	...	44	24	17	...	1-5	125.00
Wichita Falls Clinic-Hospital★	Wichita Falls, Texas	W. E. Crump	713	...	9	5	1	Varies	2-3	150.00
Dr. W. H. Groves Latter-Day Saints Hospital★[4]	Salt Lake City	A. M. Okelberry	5,918	...	118	45	3	7/1	1-3	100.00

Numerical and other references will be found on page 89

25. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
†Holy Cross Hospital★	Salt Lake City	......	1,859	....	26	9	3	1/1, 7/1	1-3	$125.00
St. Mark's Hospital★[1]	Salt Lake City	R. J. Alexander	1,680	....	43	8	1	7/1	1-5	100.00
Salt Lake General Hospital★[4]	Salt Lake City	P. B. Price	862	5,772	61	34	5	7/1	1-4	50.00
Bishop DeGoesbriand Hospital★	Burlington, Vt.	A. Gladstone	919	348	5	5	1	....	1	......
Mary Fletcher Hospital★	Burlington, Vt.	A. G. Mackay	1,844	361	24	14	4	7/1	3	100.00
Alexandria Hospital★[4]	Alexandria, Va.	C. L. Fifer	2,253	....	21	7	2	7/1	1-2	100.00
Arlington Hospital	Arlington, Va.	N. Belt	512	....	10	7	1	7/1	1	150.00
University of Virginia Hospital★[1]	Charlottesville, Va.	E. P. Lehman	2,486	9,119	80	22	10	7/1	1-4	75.00
Chesapeake and Ohio Hospital★	Clifton Forge, Va.	J. M. Emmett	3,067	5,200	23	13	3	....	1-2	......
De Paul Hospital★[1]	Norfolk, Va.	C. C. Smith	2,932	1,104	60	34	3	7/1	1	75.00
Norfolk General Hospital★	Norfolk, Va.	L. Gwathmey	3,592	3,032	36	11	7	7/1	1-3	75.00
Johnston-Willis Hospital★	Richmond, Va.	F. S. Johns	3,410	....	34	17	3	7/1	1	100.00
Medical College of Virginia, Hosp. Div.★[1]	Richmond, Va.	I. A. Bigger	2,765	5,056	104	54	9	7/1	1	46.50
Jefferson Hospital★	Roanoke, Va.	H. H. Trout	2,803	3,710	25	10	3	1/1	1-2	......
Doctors Hospital★	Seattle	D. V. Trueblood	3,706	....	60	37	1	7/1	1	100.00
King County Hospital★	Seattle	H. N. Harkins	3,133	7,621	172	40	8	7/1	1-3	125.00
Providence Hospital★	Seattle	R. L. Zech	1,503	371	14	5	2	7/1	1	100.00
Swedish Hospital★	Seattle	R. H. Loe	1,540	....	14	10	1	8/1	1	100.00
Virginia Mason Hospital★	Seattle	J. W. Baker	1,124	....	18	15	7	....	3	75.00
St. Luke's Hospital★[1]	Spokane	J. G. Matthews	3,401	145	50	22	1	....	1	125.00
Northern Permanente Hospital★[1]	Vancouver, Wash.	N. W. Frink	819	1,692	6	4	1	7/1	1	150.00
Beckley Hospital	Beckley, W. Va.	C. E. Davis, Jr.	2,408	15,735	38	18	4	1/1, 7/1	1-3	150.00
Charleston General Hospital★[4]	Charleston, W. Va.	J. E. Cannaday and H. A. Bailey	2,356	2,383	33	15	3	7/1	1-3	125.00
Chesapeake and Ohio Hospital★	Huntington, W. Va.	R. J. Wilkinson	1,580[b]	7,817[b]	...	...	2	....	1-3	......
St. Mary's Hospital★	Huntington, W. Va.	J. R. Brown	1,556	2,291	69	22	3	7/1	3	100.00
Laird Memorial Hospital[1]	Montgomery, W. Va.	W. R. Laird	2,625	11,058	51	23	3	7/1	2-3	150.00
St. Joseph Hospital★	Parkersburg, W. Va.	T. L. Harris	2,518	....	30	12	2	7/1	1-3	150.00
Myers Clinic Hospital[1]	Philippi, W. Va.	H. C. Myers	......	....	...	...	2	7/1	1-3	250.00
La Crosse Lutheran Hospital★[1]	La Crosse, Wis.	S. B. Gundersen	1,888	384	21	10	1	7/1	1	100.00
Madison General Hospital★	Madison, Wis.	H. L. Greene	1,335	....	37	21	2	7/1	1-3	50.00
St. Mary's Hospital★[4]	Madison, Wis.	J. C. Dean	1,950	....	38	16	1	7/1	1	100.00
State of Wisconsin General Hospital★[4]	Madison, Wis.	E. R. Schmidt	2,214	3,673	104	91	11	7/1	3	25.00
Columbia	Milwaukee	F. Raine	1,471	....	10	4	2	7/1	3	50.00
Evangelica	Milwaukee	E. Mensing	......	....	...	...	1	7/1	1-2	125.00
Milwaukee	Milwaukee	A. A. Schaefer	......	....	21	14	1	....	1	......
Milwaukee County Hospital★[4]	Milwaukee	C. F. Conroy	3,565	13,007	78	13	12	Varies	1-3	82.26
Milwaukee Hospital★	Milwaukee	T. S. O'Malley	2,718	....	39	24	5	7/1	3	70.00
Mount Sinai Hospital★	Milwaukee	D. V. Elconin	4,577	391	23	11	3	7/1	1-3	75.00
St. Joseph's Hospital★	Milwaukee	F. Stratton	5,698[b]	....	...	...	3	....	3	75.00
St. Luke's Hospital★[1]	Milwaukee	H. J. Gramling	......	....	...	...	1	....	1	......
St. Mary's Hospital★	Milwaukee	D. Witte	......	....	...	...	1	....	1	......
Queen's Hospital★[1]	Honolulu, Hawaii	J. E. Strode	1,406	....	20	11	7	7/1, 10/1	1-3	100.00

26. THORACIC SURGERY

Hospitals, 41; Assistant Residencies and Residencies, 107

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[5]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Army										
Fitzsimons General Hospital★	Denver	J. H. Forsee	587	2,375	11	10	5	1/1	1-3	n
Walter Reed General Hospital★	Washington, D. C.	J. S. Paul	130	244	5	5	2	1/1, 7/1	1-3	n
United States Navy										
U. S. Naval Hospital	Corona, Calif.	......	.....	.....	...	...	2	....	1	n
Veterans Administration										
†Veterans Admin. Hospital	San Fernando, Calif.	J. B. Chandler	2,125	2,458	73	21	1	....	1	$275.00
†Veterans Admin. Hospital	Van Nuys, Calif.	J. A. Weinberg	103	309	...	...	1	1/1, 7/1	1-4	275.00
†Veterans Admin. Hospital	Chamblee, Ga.	R. T. Shields	180	.....	30	20	1	7/1	1-3	275.00
Veterans Admin. Hospital	Hines, Ill.	J. Head	96	.....	7	6	4	....	1-3	275.00
†Veterans Admin. Hospital	Castle Point, N. Y.	G. L. Birnbaum	58	.....	2	...	1	....	1	275.00
Veterans Admin. Hospital	New York City	P. Sauer	153	.....	11	6	3	1/1, 7/1	1-3	275.00
Veterans Admin. Hospital	Oteen, N. C.	J. D. Murphy	497	240	25	12	4	9/1	2	275.00
†Veterans Admin. Hospital	Brecksville, Ohio	E. Kay	(See Pulmonary Diseases)				1	....	1	275.00
†Veterans Admin. Hospital	Memphis, Tenn.	F. A. Hughes	134	.....	3	3	1	7/1	1-3	275.00
†Veterans Admin. Hospital	Legion, Texas	H. T. Ivey	940	.....	92	16	2	1/1, 7/1	1-2	275.00
Veterans Admin. Hospital	McKinney, Texas	......	.....	.....	...	...	2	....	1	275.00
†Veterans Admin. Hospital	Richmond, Va.	F. P. Coleman	437	.....	11	9	2	....	1-3	275.00
Nonfederal										
Highland-Alameda County Hospital★	Oakland, Calif.	P. Samson	.....	.....	...	...	1	7/1	1-3	130.00
Olive View Sanatorium[1]	Olive View, Calif.	J. Skillen	245	.....	...	...	3	....	1	375.00
†National Jewish Hospital[4]	Denver, Colo.	J. B. Grow	254	4,781	20	15	1	7/1	1-2	......
Norwich State Tuberculosis Sanatorium	Norwich, Conn.	......	.....	.....	...	...	2	....	1	......
	Augusta, Ga.	R. Major	86	.....	3	2	2	7/1	1	200.00
erculosis Hospital	Chicago	......	456	.....	...	...	2	....	1	......
	Boston	J. Strieder	.....	.....	...	...	2	....	1	150.00
	Ann Arbor, Mich.	J. Alexander	521	1,322	15	...	6	7/1	1-5	111.40
	Detroit	E. J. O'Brien	.....	.....	...	...	3	7/1	2	350.00
Mississippi State Tuberculosis Sanatorium[1]	Sanatorium, Miss.	L. R. Reid	102	112	...	...	1	....	1	......
Barnes Hospital★	St. Louis	E. A. Graham	488	.....	28	23	2	7/1	1-5	25.00
Berthold S. Pollak Hospital for Chest Diseases	Jersey City, N. J.	F. Bortone	.....	.....	...	...	2	....	2	......
Kings County Hospital★	Brooklyn	L. Hochberg	340	570	27	15	1	7/1	1	100.00
Edward J. Meyer Memorial Hospital★[4]	Buffalo	J. D. Stewart	1,431	2,766	102	104	11	....	3	100.00
Herman M. Biggs Memorial Hospital[1]	Ithaca, N. Y.	R. Douglass	170	.....	...	...	2	....	1	......
	Jamaica, N. Y.	D. A. Mulvihill	.....	.....	14	2	6	....	1	70.00
Hospital	Mount Morris, N. Y.	......	83	.....	...	...	1	....	1	......
Columbia Univ.★[1]	New York City	F. B. Berry	(See Pulmonary Diseases)				4	1/1, 7/1	1½	70.00
Metropolitan Hospital★	New York City	S. A. Thompson	20	2,664	18	...	3	7/1	1	120.00
Homer Folks Tuberculosis Hospital	Oneonta, N. Y.	A. M. Skinner	123	18	5	4	2	10/1	1	250.00
Ray Brook State Tuberculosis Hospital	Ray Brook, N. Y.	J. Gordon	133	.....	...	...	2	Varies	1-2	230.00
Sea View Hospital[1]	Staten Island, N. Y.	L. R. Davidson	304	.....	11	1	7	1/1, 7/1	2	45.00

Numerical and other references will be found on page 89

26. THORACIC SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[b]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[b]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
North Carolina Baptist Hospital	Winston-Salem, N. C.	H. H. Bradshaw	120	126	22	18	2	....	1	......
City Hospital★[1]	Cleveland	S. O. Freedlander	.....	.....	...	...	1	7/1	1-4	$100.00
University of Oregon Medical School Hospitals and Clinics★[1]	Portland, Ore.	W. S. Conklin	212	6,205	10	7	4	7/1	3	75.00
Murdale Sanatorium	Milwaukee	J. Steele	(See Pulmonary Diseases)				2	varies	1-2	....

27. UROLOGY

The following services are approved by the Council and the American Board of Urology
(See footnotes 1, 2 and 3 for number of years credit)
Hospitals, 177, Assistant Residencies and Residencies, 407

Name of Hospital	Location	Chief of Service	Inpatients Treated[b]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[b]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
United States Army										
Letterman General Hospital★[2]	San Francisco	J. W. Schwartz	430	3,019	4	6	2	1/1	1-2	n
Walter Reed General Hospital★[1]	Washington, D. C.	J. C. Kimbrough	503	2,409	10	10	4	1/1	1-3	n
†Brooke General Hospital★[1]	San Antonio, Texas	G. R. Hamilton	778	7,456	6	6	5	1/1	1-3	n
†Madigan General Hospital★[2]	Fort Lewis, Wash.	....	......	......	...	...	2	....	1-2	n
†Gorgas Hospital★[2]	Ancon, C. Z.	G. R. Wright	633	3,107	10	7	3	1/1	1-2	n
United States Navy										
U. S. Naval Hospital★[3]	Long Beach, Calif.	L. A. Newton	896	1,546	4	4	1	Varies	1-3	n
U. S. Naval Hospital★[3]	Oakland, Calif.	L. R. Reynolds	826	......	18	14	1	....	1-3	n
U. S. Naval Hospital★[3]	San Diego, Calif.	J. S. Hanten	812	4,700	12	12	2	Varies	1-3	n
U. S. Naval Hospital★[3]	Bethesda, Md.	H. J. Cokely	852	1,310	10	9	3	Varies	1-3	n
U. S. Naval Hospital★[3]	St. Albans, N. Y.	S. Johnson	436	..	6	...	1	10/1	1-3	n
U. S. Naval Hospital★[3]	Philadelphia	J. W. Rogers	618	3,423	33	7	2	Varies	1+	n
U. S. Naval Hospital★[3]	Portsmouth, Va.	....	......	......	...	...	1	....	1+	n
United States Public Health Service										
U. S. Marine Hospital★[2]	Baltimore	J. S. Haines	736	7,615	1	1	2	7/1	1-2	n
Veterans Administration										
†Veterans Admin. Center[3]	Los Angeles, Calif.	C. H. McIntyre	718	......	38	27	4	7/1	1-3	$275.00
Veterans Admin. Hospital[1]	San Francisco	H. M. Weyrauch	133	584	5	3	3	7/1	1-3	275.00
†Veterans Admin. Hospital[3]	Van Nuys, Calif.	J. A. Weinberg	429	710	8	6	3	1/1, 7/1	3	275.00
†Veterans Admin. Hospital[3]	Chamblee, Ga.	....	500	......	15	5	2	7/1	1-3	275.00
Veterans Admin. Hospital[3]	Hines, Ill.	F. Lloyd	812	......	53	21	7	....	1-3	275.00
†Veterans Admin. Hospital[2]	Louisville, Ky.	M. I. Schwalbe	468	159	7	5	1	7/1	1-3	275.00
†Veterans Admin. Hospital[1]	New Orleans, La.	J. G. Pratt	211	358	5	4	1	7/1	1-3	275.00
†Veterans Admin. Hospital[1]	Fort Howard, Md.	H. Meisel	362	......	6	3	1	Varies	1-3	275.00
†Veterans Admin. Hospital (West Roxbury)[3]	Boston	G. Warren	355	609	5	4	2	....	1-2	275.00
†Veterans Admin. Hospital[2]	Framingham, Mass.	E. P. Stone	159	.....	7	5	1	7/1	1-2	275.00
†Veterans Admin. Hospital[1]	Jefferson Bks, Mo.	J. Cordonnier	400	4,000	7	6	3	7/1	1-3	275.00
Veterans Admin. Hospital[2]	New York City	L. L. Spivack	497	940	47	17	5	7/1	1-3	275.00
†Veterans Admin. Hospital[3]	Staten Island, N. Y.	S. N. Kessler	117	474	1	1	3	7/1	3	275.00
†Veterans Admin. Hospital[1]	Cleveland	A. M. Barone	570	100	9	4	1	7/1	1-3	275.00
†Veterans Admin. Hospital[1]	Portland, Ore.	P. B. Potampa	406	......	4	2	1	7/1	1-3	275.00
†Veterans Admin. Hospital[3]	Aspinwall, Pa.	C. A. Kuehn	192	......	10	6	1	7/1	1-3	275.00
†Veterans Admin. Center[3]	Columbia, S. C.	T. M. Yates	222	......	13	5	5	1/1	1-3	275.00
†Veterans Admin. Hospital[3]	Memphis, Tenn.	F. M. Jacobs	541	171	6	5	4	7/1	1-3	275.00
†Veterans Admin. Hospital[2]	Nashville, Tenn.	H. S. Shelley	......	......	...	...	1	7/1	1-3	275.00
†Veterans Admin. Hospital[3]	Dallas, Texas	J. C. Alexander and K. King	252	......	3	...	1	Varies	1-3	275.00
†Veterans Admin. Hospital[3]	McKinney, Texas	P. A. Duff	295	......	7	4	1	7/1	1-3	275.00
†Veterans Admin. Hospital[3]	Richmond, Va.	R. C. Bunts	743	2,080	4	2	3	Varies	1-3	275.00
†Veterans Admin. Hospital[1]	Milwaukee	J. C. Sargent	305	919	12	10	3	7/1	1-3	275.00
Nonfederal										
Jeffe [illegible]	Birmingham, Ala.	W. F. Scott	465	11,197	20	5	3	7/1	1-2	50.00
Cali [illegible]	Los Angeles	J. J. Crane	628	......	16	9	2	7/1	3	100.00
Los [illegible]	Los Angeles	J. J. Crane	2,367	10,199	185	59	5	Varies	3	165.00
†Presbyterian Hosp., Olmsted Memorial★[2]	Los Angeles	T. O. Powell	751	......	19	6	1	9/1	2	150.00
White Memorial Hospital★[3]	Los Angeles	R. W. Barnes	522	5,397	23	12	3	....	1-3	147.33
Franklin Hospital★[4]	San Francisco	F. Hinman	752	..	8	5	3	7/1	1+	100.00
San Francisco Hospital★[3-4]	San Francisco	....	444	....	29	4	2	....	1+	290.00
†Southern Pacific General Hospital★[2]	San Francisco	T. E. Gibson	442	1,050	8	2	1	7/1	1+	250.00
Stanford University Hospitals★[3-4]	San Francisco	J. R. Dillon	411	3,686	4	2	1	7/1	1-2	50.00
University of California Hospitals★[3-4]	San Francisco	F. Hinman	336	7,568	5	2	1	7/1, 8/1, 9/1	1+	50.00
†Santa Clara County Hospital★[2]	San Jose, Calif.	D. Fagerstrom	250b	480b	.	...	1	....	1-2	180.00
University of Colorado Medical Center[3]										
Colorado General Hospital★	Denver	I. W. Philpott	291	1,868	10	9	2	1/1, 7/1	1-3	75.00
†Denver General Hospital★[2]	Denver	I. W. Philpott	334	9,798	40	9	1	1/1, 7/1	1-3	75.00
Grace-New Haven Community Hospital New Haven Unit (University Service)★[3-4]	New Haven, Conn.	C. Deming	605	2,640	22	16	1	7/1	1+	40.00
†Hospital of St. Raphael★[3]	New Haven, Conn.	L. L. Maurer	315	......	11	1	1	7/1	1+	75.00
†Waterbury Hospital★[2]	Waterbury, Conn.	C. H. Neuswanger and H. J. Stettbacher	542	69	19	6	1	....	2	100.00
†Freedmen's Hospital★[3]	Washington, D. C.	R. F. Jones	293	3,524	18	7	1	7/1	1-5	116.66
Gallinger Municipal Hospital★[3-4]	Washington, D. C.	W. P. Herbst	370	1,417	18	12	3	7/1	1-3	75.00
St. Vincent's Hospital★[2]	Jacksonville, Fla.	R. B. McIver	404	......	22	16	2	7/1	1-2	100.00
Grady [illegible]	Atlanta, Ga.	M. K. Bailey	978	6,390	33	11	6	7/1	1+	40.00
† [illegible]	Augusta, Ga.	J. R. Rinker	370	599	25	2	1	7/1	1-2	40.00
[illegible]	Chicago	E. F. Hess	292	......	13	5	1	7/1	1	100.00
[illegible] Hospital★	Chicago	W. J. Baker	1,336	2,949	183	...	2	1/1, 7/1	1-3	27.50
†Mercy Hospital★[3]	Chicago	H. E. Landes	580	1,674	22	9	2	7/1	3	25.00
Michael Reese Hospital★[3-4]	Chicago	H. Rolnick	405	1,417	...	...	2	1/1	2	25.00
†Mount Sinai Hospital★[2]	Chicago	H. C. Rolnick	324	624	12	4	1	7/1	1+	50.00
Presbyterian Hospital★[3]	Chicago	N. J. Heckel	937	2,095	11	7	2	....	1-3	25.00
St. Luke's Hospital★[3]	Chicago	H. Culver	643	1,379	16	9	2	7/1	1-3	25.00
University of Chicago Clinics★[3]	Chicago	C. B. Huggins	285	6,296	14	11	2	7/1	1-2	25.00
Wesley Memorial Hospital★[3-4]	Chicago	V. J. O'Conor	724	.....	7	4	1	1/1, 7/1	1-3+	25.00
†Decatur and Macon County Hospital[3]	Decatur, Ill.	A. C. Simon	226b	5,261	...	...	1	6/1	1+	100.00
†St. Francis Hospital★[3-4]	Peoria, Ill.	A. Sprenger	688	265	25	9	1	7/1	1-3	150.00
Indianapolis General Hospital★[3]	Indianapolis	E. Rupel	445	2,189	35	21	3	7/1	1-3	70.00

Numerical and other references will be found on page 89

27. UROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[b]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[c]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
†Indiana University Medical Center★[3]	Indianapolis	H. O. Mertz	195	1,123	13	5	2	7/1	2-3	$ 33.33
†Methodist Hospital★[3]	Indianapolis	P. E. McCown	1,102	....	23	12	1	7/1	1-2	200.00
University Hospitals★[3-4]	Iowa City	N. G. Alcock	1,680	2,218	57	32	8	7/1	1+	50 00
†University of Kansas Hospitals★[1-4]	Kansas City, Kan.	N. F. Ockerblad	413	1,163	16	7	1	....	1+	......
†St. Joseph Hospital★[2]	Lexington, Ky.	E. H. Ray	548	....	17	7	1	7/1	1+	90.00
Charity Hospital of Louisiana★[1]	New Orleans		2,689	14,148	102	31	11	7/1	1-3	25.00
†Foundation Hospital[4]	New Orleans	E. Burns	300	14,000	.	..	3	10/1	3	150 00
Touro Infirmary ★[3]	New Orleans	W. A. Reed	662	2,723	12	8	1	7/1	1+	17.50
Johns Hopkins Hospital★[3]	Baltimore	W. W. Scott	1,018	3,979	29	17	5	....	1+	......
†Sinai Hospital★[3]	Baltimore	A. E. Goldstein	445	....	26	15	3	7/1	1-4	25 00
Beth Israel Hospital★[3]	Boston	E. G. Crabtree	360	1,676	...	..	1	6/1	1+	41.66
Boston City Hospital★[3]	Boston	G. C. Prather	457	7,359	26	7	3	.....	1+	66 67
Lahey Clinic[3]	*Boston*	E. E. Ewert	*550b*	*9,600b*	10	6	3	Varies	1-3	125.00
Massachusetts General Hospital★[3]	Boston	F. H. Colby	431b	7,377b	27	22	3	....	1-3	41.67
Hospitals★[3]	Boston	S. N. Vose	...	1,324	10	7	3	1/1	1+	50 00
ntal★[3]	Boston	J. H. Harrison	350b	3,000b	..	...	2	....	1-3	.....
★[2]	Worcester, Mass.	L. M. Felton	494	2,626	47	11	2	7/1	1-2	50.00
	Ann Arbor, Mich.	R. Nesbit	1,079	7,353	31	17	6	7/1	1-5	111.40
Hospital★[3 4]	Detroit	F. C. Cole	757	3,104	36	12	2	7/1	1+	167.00
Grace Hospital★[3]	Detroit	L. W. Hull	815	530	17	7	2	7/1	1-3	75.00
Harper Hospital★[2 4]	Detroit	F. H. Cole	1,031	1,242	..	..	3	7/1	1+	118 00
Henry Ford Hospital★[3 4]	Detroit	J. K. Ormond	611	14,910	12	7	3	7/1	1-3	200.00
Wayne County General Hospital and Infirmary★[3 4]	Eloise, Mich.	W. L. Sherman	884	1,991	99	33	2	7/1	1+	216.25
Minneapolis General Hospital★[3]	Minneapolis	T. H. Sweetser	311	2,549	16	9	1	1/1, 7/1	1-3	115.00
†St. Mary's Hospital★[2]	Minneapolis	T. H. Sweetser	421	..	9	6	1	....	3	.....
University Hospitals★[3 4]	Minneapolis	C. D. Creevy	522	1,952	15	12	5	7/1	1-3	115 00
Mayo Foundation[3]	Rochester, Minn.	G. J. Thompson	(See page	89)	...	..	12	....	1-3	......
Ancker Hospital★[3]	St. Paul	F. E. B. Foley	294	1,370	42	31	1	7/1	1	91.50
Charles T. Miller Hospital★[1]	St. Paul	F. E. B. Foley	644	3,191	12	10	1	7/1	1-3	115 00
Kansas City General Hospital No. 1★[3]	Kansas City, Mo.	I. S. Brown	492	1,979	33	23	1	7/1	1-2	50.00
★[4]	Kansas City, Mo.	R. L. Hoffman	526	19	13	11	2	7/1	1-3	100.00
	St. Louis	D. K. Rose	877	3,155	17	13	1	7/1	1-5	25.00
	St. Louis	R. Deakins	602	3,184	30	6	2	7/1	1+	50.00
	St. Louis	G. Carroll	514	1,708	72	37	3	7/1	1+	95.00
	St. Louis	C. E. Burford	614	2,488	22	10	2	Varies	3	35.00
Atlantic City Hospital★	Atlantic City, N. J.	C. H. De T. Shivers	370	3,161	5	2	1	6/1	1-2	......
Bayonne Hospital and Dispensary ★[3]	Bayonne, N. J.	S. R. Woodruff	548	387	2	1	1	7/1	1+	.....
†Cooper Hospital★[2]	Camden, N. J.	D. F. Bentley	285	5,482	23	12	1	7/1	2	100.00
Jersey City Hospital★[1]	Jersey City, N. J.	E. J. Daly	501	3,224	43	10	2	Varies	1-3	35 00
Newark City Hospital★[3]	Newark, N. J.	C. R. O'Crowley	850b	.	.	.	1	....	2	30.00
Albany Hospital★[3 4]	Albany, N. Y.	J. E. Heslin	762	1,016	32	14	2	7/1	1+	41.66
Kings	Brooklyn	F. Senger	1,860	3,891	177	21	2	7/1	3	50.00
Long I	Brooklyn	F. L. Senger	654	2,798	16	6	3	7/1	3	25.00
Buffalo General Hospital★	Buffalo	O. J. Oberkircher	481	1,383	17	5	1	7/1	1-3	25.00
Edward J. Meyer Memorial Hospital★[3-4]	Buffalo	E. M. Watson	445	2,600	48	19	2	7/1	3	100 00
†Millard Fillmore Hospital★[2]	Buffalo	E. L. Brodie	545	....	14	7	3	....	1-4	50.00
Queens General Hospital★[3 4]	Jamaica, N. Y.	F. G. Riley	925	2,562	83	49	4	7/1	3	70.00
Bellevue Hospital, Div. II—Cornell Univ.★[3 4]	*New York City*	R. S. Hotchkiss	1,167b	9,315b	37b	13b	4	7/1	3	45.00
†Beth Israel Hospital★[2-4]	New York City	S. F. Wilhelm	688	1,992	21	6	3	7/1	1-3	50 00
Metropolitan Hospital★[2 4]	New York City	S. Carleton	342	2,934	38	8	1	11/1	1	120 00
Morrisania City Hospital★[3 4]	New York City	J. Duff	678	2,363	22	10	5	7/1	3	60.00
†Mount Sinai Hospital★[3]	New York City	L. Edelman	....	4,797b	.	.	2	1/1, 7/1	1-2	50 00
New York City Hospital★[2]	New York City	J. H. Morrissey	253	2,262	42	22	3	7/1	1	120.00
New York Hospital★[3-4]	New York City	O. S. Lowsley	341	79,578	4	...	3	7/1	1-3	25 00
		V. F. Marshall	608	56,944	10	5	3	7/1	1-4	25 00
New York Polyclinic Medical School and Hospital★[1]	New York City	J. F. McCarthy	486	1,259	8	1	2	7/1	2	25.00
New York Post-Graduate Medical School and *Hospital*★[3]	New York City	C. G. *Bandler*	499	3,661	6	2	2	7/1	2	......
Presbyterian Hospital★[3-4]	New York City	G. F. Cahill	1,205	10,220	31	..	6	....	3	41.66
Roosevelt Hospital★[1]	New York City	S. A. Beisler	494	3,492	12	3	2	7/1	1-2	86 67
St. Luke's Hospital★[3]	New York City	G. F. Hoch	522	3,077	20	7	1	Varies	1-3	50 00
Strong Memorial—Rochester Municipal Hospitals★[3-4]	Rochester, N. Y.	W. W. Scott	1,374	12,381	...	...	3	7/1	1-4	41.66
Sea View Hospital[1-4]	Staten Island, N. Y.	A. Greenberger	124	.....	6	1	2	1/1, 7/1	1	45 00
Charlotte Memorial Hospital★[3 4]	Charlotte, N. C.	P. Nowlin	1,309	119	16	6	2	7/1	1-3	75.00
Duke Hospital★[3-4]	Durham, N. C.	E. P. Alyea	482	4,306	12	7	4	7/1	1+	83.33
Watts Hospital★[2]	Durham, N. C.	W. M. Coppridge	481	183	12	9	2	7/1	1-2	50.00
North Carolina Baptist Hospital★[3-4]	Winston-Salem, N. C.	F. K. Garvey	484	1,271	13	5	2	....	1+	......
City Hospital★[3 4]	Cleveland	H. Trattner	486	2,890	39	...	2	7/1	1+	70 00
Cleveland Clinic Foundation Hospital[1]	Cleveland	W. E. Lower	1,147	20,900	24	7	5	7/1	1-3	100.00
University Hospitals★[3]	Cleveland	J. J. Joelson	944	4,781	14	...	1	7/1	1+	25.00
Starling-Loving University Hospital★[2 4]	Columbus, Ohio	W. N. Taylor	524	743	34	21	2	7/1	1-3	50 00
St. Vincent's Hospital★[2 4]	Toledo, Ohio	L. P. Dolan	632	9	18	12	2	7/1	1-3	100.00
University Hospitals★[3]	Oklahoma City	B. A. Hayes	187	2,096	18	5	1	7/1	1-2	35.00
†St. Vincent's Hospital[2]	Portland, Ore.	J. R. Hand	696	......	17	8	1	7/1	1	None
University of Oregon Medical School Hospitals and Clinics★[3 4]	Portland, Ore.	J. R. Hand	258	2,687	24	13	3	7/1	3	75 00
†*Allentown Hospital*★[2]	Allentown, Pa.	W. C. Masonheimer	887	251	20	7	1	7/1	2	100 00
George F. Geisinger Memorial Hospital★[1]	Danville, Pa.	W. I. Buchert	679	7,655	15	6	2	7/1	1-2	75 00
St. Vincent's Hospital★[3]	Erie, Pa.	E. Hess	1,420	4,152	33	14	3	7/1	3	50 00
†Harrisburg Hospital★[2]	Harrisburg, Pa.	S. L. Grossman	596	3,668	47	2	1	7/1	1-2	100.00
†Episcopal Hospital★[2]	Philadelphia	G. E. Shoup	251	1,497	17	...	1	1/1, 7/1	2+	50.00
Graduate Hospital of the Univ. of Pa.★[2]	Philadelphia	J. C. Birdsall	177	2,117	4	2	1	7/1	1-2	......
†Hahnemann Hospital★[3]	Philadelphia	F. W. Campbell	506	.....	3	3	1	....	1-3	50 00
Hospital of the Univ. of Pennsylvania★[3]	Philadelphia	P. B. Hughes	758	2,440	7	5	3	Varies	2-3	100.00
Jefferson Medical College Hospital★[1]	Philadelphia	D. M. Davis	856	6,032	18	10	3	....	1+	......
†Lankenau Hospital★[2]	Philadelphia	C. A. W. Uhle	291	621	7	3	1	7/1	1-3	50.00
†Mount Sinai Hospital★[2 4]	Philadelphia	M. Muschat and I. J. *Carp*	261	310	7	4	1	7/1	1	50 00
Pennsylvania Hospital★[3]	Philadelphia	L. Herman	678	4,127	13	5	2	7/1, 11/1	1-3	20.00
†*Philadelphia General Hospital*★[3]	*Philadelphia*	E. A. Mullen	299	1,058	70	...	3	....	1-3	70.00
Presbyterian Hospital★[3-4-10]	Philadelphia	J. Birdsall	......	..	..	...	1	....	2	50 00
†*Temple University Hospital*★[3-5]	Philadelphia	K. B. Conger	194	2,592	8	...	1	7/1	3	50 00
Mercy Hospital★[1 4]	Pittsburgh	E. J. McCague	501	583	8	5	1	9/1	1-3	100 00
†University of Pittsburgh Medical Center★[3]	Pittsburgh	J. J. Lee	537	......	8	3	2	....	1-5	41 67
†Robert Packer Hospital★[1]	Sayre, Pa.	W. Bourys	534	1,800	9	6	1	7/1	1-3	150 00
†Uniontown Hospital★[1]	Uniontown, Pa.	R. P. Beatty	350	3,000	15	5	1	4/1	1	125.00

Numerical and other references will be found on page 89

27. UROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered[8]	Beginning of Service (1948)	Length of Service Offered (Years)	Beginning Stipend (Month)
Mercy Hospital★[1]	Wilkes-Barre, Pa.	P. P. Mayrock	345	815	17	7	1	10/1	1	$ 50.00
†Roper Hospital★[3]	Charleston, S. C.	J. J. Ravenel	527	1,337	15	3	1	7/1	1-4	25.00
†Tri-County Hospital[3]	Orangeburg, S. C.	L. P. Thackston	1,609	4,503	12	8	1	7/1	3-4	150.00
†John Gaston Hospital★[3]	Memphis, Tenn.	T. D. Moore	596	8,001	30	15	3	7/1	1	......
†St. Joseph Hospital★[2]	Memphis, Tenn.	G. Livermore	450	128	17	10	1	7/1	1-3	100.00
Parkland Hospital★[3]	Dallas, Texas	K. King	400	2,956	15	6	3	7/1	1-3	50.00
John Sealy Hospital (University of Texas Medical Branch)★[2]	Galveston, Texas	R. E. Cone	337	3,758	8	3	3	....	1-3	50.00
†Herman[illegible]★[3]	Houston, Texas	C. M. Crigler	731	1,745	14	7	1	....	1+	50 00
†Mary F[illegible]	Burlington, Vt.	W. M. Flagg	412	12	21	14	2	7/1	3	100.00
Univers[illegible]	Charlottesville, Va.	S. A. Vest	621	3,316	18	7	4	7/1	1-4	60.00
Medica[illegible] Div.★[3]	Richmond, Va.	A. I. Dodson	579	2,071	25	7	4	7/1	1	46.50
†St. Mary's Hospital★[3]	Huntington, W. Va.	R. M. Bobbitt	672	3,000	26	8	1	7/1	3	100.00
†La Crosse Lutheran Hospital★[1]	La Crosse, Wis.	A. H. Gundersen	231	4	6	2	1	7/1	1	100.00
†Madison General Hospital★[2]	Madison, Wis.	I. Sisk	615	......	24	8	2	7/1	3	50.00
State of Wisconsin General Hospital★[3]	Madison, Wis.	I. R. Sisk	500	......	25	19	4	7/1	3	25.00
Milwaukee County Hospital★[3,4]	Milwaukee	R. E. Stockinger	481	2,450	37	...	2	Varies	1-3	82.26

Mayo Foundation Fellowships—The Mayo Foundation for Medical Education and Research, Rochester, Minn.; three-year fellowships beginning quarterly leading to the degree of M.S. or Ph.D. with field named from the University of Minnesota; in Anesthesia, Dermatology and Syphilology, Internal Medicine, Neurology and Psychiatry, Neurological Surgery, Obstetrics and Gynecology, Ophthalmology, Orthopedic Surgery, Otolaryngology, Pathology, Pediatrics, Physical Medicine, Plastic Surgery, Proctology, Radiology, Surgery, Urology; stipend $1,310 per year, (clinical fellowships including pathology and radiology—tentative estimate, 400). Address applications to The Mayo Foundation, Rochester, Minn.

NUMERICAL AND OTHER REFERENCES USED IN TABLES OF APPROVED RESIDENCIES AND FELLOWSHIPS

a. Compensation arranged by medical school and hospital.
b. As reported in previous list.
c. In lieu of maintenance.
d. Residency in epilepsy.
e. Obstetrical training at Herman Kiefer Hospital, Detroit.
f. Training in gynecology at City of Detroit Receiving Hospital.
g. Assignment in psychosomatic medicine also available.
h. Fellowship offered in affiliation with Northwestern University Medical School, St. Luke's Hospital and Wesley Memorial Hospital, Chicago.
j. Outpatient and home delivery service only.
k. Training in gynecology at Barnes Hospital, St. Louis.
m. In affiliation with Cincinnati General Hospital.
n. Salary established by government pay tables.
½. Approved by the Board as offering satisfactory six months training.
1. Approved by the Board as offering satisfactory one year training.
1½. Approved by the Board as offering satisfactory eighteen months training.
2. Approved by the Board as offering satisfactory two year training.
2½. Approved by the Board as offering satisfactory thirty months training.
3. Approved by the Board as offering satisfactory three year training.
4. Residencies open to women.
5. Clinical data includes psychiatry.
6. Inpatients: Data refers to total inpatients treated in specialty. Obstetrical admissions do not include newborn. In anesthesiology, general residency and pathology total hospital admissions are used.
7. Clinical data includes neurology.
8. Includes fellowships.
9. Affiliated with Northwest Clinic, Minot.
10. Includes acceptable affiliate assignment at Urologic Clinic, Philadelphia.
11. Includes affiliate service at South Bend Medical Laboratory, St. Joseph Hospital, South Bend; Elkhart General Hospital, Elkhart and St. Joseph's Hospital, Mishawaka, Indiana.
12. Represents training acceptable to Board in (1) radiology, (2) roentgenology, (3) therapeutic radiology, (4) diagnostic roentgenology.
13. Affiliated with North Carolina Orthopedic Hospital, Gastonia and Georgia Warm Springs Foundation, Warm Springs, Ga.
14. Type of training acceptable to Board: A—adult orthopedics; C—children's orthopedics; F—fractures; S—basic sciences.
15. Includes affiliate service at Emory University.
16. Affiliated with Genesee Hospital.
17. Acceptable affiliations at Norton Memorial Infirmary and Veterans Administration Hospital, Louisville.
18. Affiliated with Sea View Hospital and St. Vincent's Hospital, Staten Island.
19. Training will also be carried out at DeKalb Public Hospital and St. Mary's Hospital, DeKalb, Ill.
20. Part of three year program offered by Harper, City of Detroit Receiving and Children's Hospitals in affiliation with Wayne University.
21. In affiliation with Johns Hopkins Hospital, Baltimore.
22. Approved for training in syphilology only.
23. Affiliated with Medical School of the University of Vermont, to include assignment at Bishop De Goesbriand Hospital.
24. Affiliated with Free Hospital for Women, Brookline, Mass.
25. In affiliation with Hartford Hospital, Hartford, Conn.
26. In affiliation with Good Samaritan and St. Vincent's Hospitals, Portland.
27. Includes affiliated service at St. Francis Hospital, Wichita, Kans. and Children's Mercy Hospital, Kansas City, Mo.
28. Apply: Office of Graduate Medical Education, University of Colorado Medical Center.
29. Includes affiliated service at Lakeville State Sanatorium, Middleboro, Mass.
30. Training program under the sponsorship of the University of Washington School of Medicine, Seattle.
31. Includes Stanford University Division—F½; University of California Division—AF 1½.
32. Includes affiliated service at Milwaukee Children's Hospital.
★ Indicates hospitals approved for training interns.
† Indicates temporary approval.

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SATURDAY, MAY 1, 1948

EDITORIAL ANNOUNCEMENT

The absence of the compositors from their work continues. This issue of THE JOURNAL has been prepared in part by the use of Vari-Typer machines.

ANNUAL REPORT ON INTERNSHIPS AND RESIDENCIES

The annual internship and residency report of the Council on Medical Education and Hospitals previously published in August of each year is now for the first time presented in a special Internship and Residency Number of THE JOURNAL. This change has been made so that information on educational services may be available at an earlier date to those seeking internship and residency appointments for 1949.

The report lists 807 hospitals approved for intern training which offer at present a total of 9,118 internships. An innovation in connection with this list is the identification of hospitals that are affiliated with medical schools for undergraduate clinical clerkships. This information should be of considerable interest to prospective interns.

Once again a significant increase in the number of residencies approved by the Council on Medical Education and Hospitals has been recorded. The present number of residencies in 1,102 approved hospitals is 15,172 as compared with 5,256 in 1941 and 1,776 in 1927, when the first residency list was prepared by the Council. Thus in a period of twenty years the residencies approved by the American Medical Association have increased nearly ninefold. The greatest expansion, however, has occurred in the last seven years in order to meet the accumulated needs of the wartime period. Both federal and nonfederal hospitals have participated generously in the development of new residency training programs. The nonfederal hospitals can at the present time accommodate 12,402 resident physicians, while the hospitals of the Army, Navy, U.S. Public Health Service and Veterans Administration provide facilities for 2,770.

The greatest number of residencies, 2,977 in all, is in the field of general surgery, whereas internal medicine reports a total of 2,880 not counting the residencies available in the related divisions of allergy, cardiovascular disease, gastroenterology and pulmonary diseases. Psychiatry has 1,618 residencies, obstetrics and gynecology 1,145, radiology 833, pathology 794, pediatrics 791, orthopedic surgery 718, anesthesiology 487 and urology 407. Other divisions represented in the lists of Approved Residencies and Fellowships likewise show a decided increase in the number of residencies available as compared with previous reports.

Although the number of residencies have increased by nearly 200 per cent since 1941, there is not yet any clear indication that a saturation point will soon be reached. Apparently the number of requests for residency approval is beginning to diminish, yet new applications are still being received by the Council on Medical Education and Hospitals at the rate of approximately two a day.

Applications for residency approval are reviewed in collaboration with the respective specialty boards, all of which cooperate with the Council in the evaluation of educational programs. Under this cooperative plan all residencies approved by the American Medical Association are likewise acceptable to the specialty boards in their respective fields.

THE SUPPLY AND DISTRIBUTION OF INTERNS

The analysis of current trends in the supply and distribution of interns presented in the Annual Report of Approved Internships and Residencies, prepared by the Council on Medical Education and Hospitals and published in this issue of THE JOURNAL, should interest all who administer or participate in internship programs.

The primary purpose of internship is to provide additional educational experience for the recent medical school graduate. However, the value of the service that an intern contributes to a hospital has become so widely appreciated that more and more hospitals have undertaken to develop approved internship programs, often at considerable expense. As a consequence, the ratio of the number of available internships to the number of interns seeking appointments has been completely reversed during the past thirty years. From a period when only a few of the larger metropolitan hospitals offered a limited number of internships and when only a fortunate few could obtain such training, the number of internships has gradually increased to the point where almost 2,000 internships remain unfilled each year.

Until the beginning of World War II a fairly satisfactory balance was maintained between the number of internships and the number of interns available. In 1939 almost 80 per cent of the approved hospitals had their full complement of interns. In contrast, during the current year only 33 per cent of the hospitals have obtained their full number of interns while 25 per cent have less than half their internships filled. One half of this latter group, or 12.5 per cent of all the approved hospitals, report that they have been unable to secure any interns during the past year, although the majority do have residents.

The detailed breakdown of the current distribution of interns reveals that the large hospitals and those institutions affiliated with medical schools are most successful in attracting interns. Least successful are the small nonteaching hospitals. These results are not surprising, since interns will usually seek appointments in those hospitals that give promise of offering the best educational experience as judged by the quantity and diversity of clinical material available and by the quality of the supervision provided. Confirmation of the belief that the opportunity for training rather than other considerations is the factor that influences interns most in the choice of a hospital is found in the fact that internship vacancies are considerably higher in those hospitals offering large stipends than in those that do not offer a stipend.

The problem of how to maintain a balance between the number of interns and the number of internships available is not easy to solve, particularly at this time when the effect of the war on the pattern of the supply and distribution of interns has not been entirely removed. Any attempt to accomplish a more even distribution of the available supply of interns by establishing quotas would be difficult, if not impossible, to enforce. Further, it would have the undesirable feature of denying interns the right to seek appointments in the hospitals with better educational programs up to the capacity of such hospitals to train interns effectively. Such a policy would be definitely contrary to the purpose and philosophy that underlies the internship.

Another possible solution would be arbitrary limitation of the number of hospitals that could be approved for internships at any one time. This type of quota would be distasteful because it would discourage free enterprise and competition among hospitals.

The time is probably not yet ripe to attempt any radical solution; eventually the problem may correct itself. For the first time in seven years, none of the current group of first year interns are under obligation to enter military service on the completion of one year or less of internship. Presumably some of these men will seek a second year of internship or its equivalent, the general residency. More hospitals than have done so already may be expected to return in the next year or so to their prewar policy of offering internships of more than one year's duration. Such a development would lead to a decrease in the total annual demand for interns. Finally, hospitals that persistently fail to secure interns will have to face the fact that for one reason or another they are unable to compete successfully with other hospitals in obtaining interns and that they must of necessity consider other methods for securing full time house officers.

In the present situation a hospital should not seek to initiate an internship training program unless a realistic evaluation presents convincing evidence that it will be of sufficiently high quality to constitute a real attraction to prospective interns. Hospitals with programs that meet only minimal standards will probably not be able to obtain interns, and hospitals that offer such programs will experience considerable disappointment when their internships are not sought.

THE THYROID AND VITAMIN A

Some six years after the announcement of the discovery of vitamin A, attention was called [1] to striking parallelism between the activity of vitamin A and the natural yellow color in plant sources of this food factor. Thus rutabagas, sweet potatoes and even yellow daffodils were shown to be superior in protecting experimental animals against the sequels of vitamin A deficiency than are the nonyellow varieties of the same plants. Later the yellowness was shown to be due to several hydrocarbon pigments that occur naturally in plants; alpha, beta and gamma carotene and cryptoxanthine are examples of this type of pigment which have come to be known as provitamins A. Obviously, carotene is transformed into vitamin A in the animal body, for when this pigment is fed, there results an accumulation of vitamin A. This circumstance, together with the fact that the liver is the most important site of storage of vitamin A in the body, has led to the ready assumption that the locus of transformation of carotene to vitamin A is the liver. That this view is open to question has been pointed out recently.[2] In any case, it is desirable to know the factors that influence this change.

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[1] Steenbock, H.: Science 50: 352, 1919.

The older clinical literature recounts repeated instances which indicate that the activity of the thyroid gland is in some way involved in the carotene-vitamin A relationship. Thus it has been demonstrated that carotene accumulates in the milk after thyroidectomy;[3] the cretin shows inability to change carotene to vitamin A;[4] carotinemia is frequently encountered in patients showing clinical and laboratory signs of hypothyroidism;[5] patients with untreated myxedema are likely to have high levels of carotene in the blood,[6] and animals treated with antithyroid drugs like thiouracil give evidence of vitamin A deficiency despite adequate amounts of carotene in the diet.[7] A recent report[8] has submitted the thesis to further experimental study; after demonstrating again the effectiveness of carotene to replace vitamin A in the ration, it was shown that after thyroidectomy carotene failed to protect against xerophthalmia, whereas preformed vitamin A did exert the expected protective action. Similarly, Johnson and Baumann[9] have demonstrated that the storage of vitamin A in the liver and kidneys is minimal when thiouracil and thiourea are present in the diet with carotene, but not when the vitamin itself is given. The addition of thyroxin to these diets again permits the change of carotene to vitamin A.

In postulating a mechanism for the promoting action of thyroid hormone in the change of carotene to vitamin A, the calorigenic activity of thyroxin comes to mind. However, the Wisconsin investigators[9] have shown that this action is a specific function of the thyroid, as the increased basal metabolic rate produced by 2,4-dinitrophenol did not influence the foregoing phenomenon. The significance of further definitive data on the mechanism of this influence of the thyroid is readily appreciated when one considers that a large part of the daily intake of vitamin A potency may be in the form of the precursor, carotene, and that the effects of a deficiency of this essential food factor results in severe tissue damage and widespread functional derangement.

CONTAMINATED DEXTROSE SOLUTION--A WARNING

On April 19 the headquarters of the American Medical Association received a wire from Dr. W.F. O'Donnell Jr. of Hazard, Ky., reporting serious reactions in 2 patients immediately following the intravenous use of 5 per cent dextrose in normal saline solution manufactured by Cutter Laboratories, Berkeley, Calif. The product bore a control number, CM 8164 The American Medical Association immediately notified the Food and Drug Administration of these facts, and a nationwide investigation by federal and state regulatory officials was launched. Not all the facts are yet available, but the following information justifies a warning to all physicians and hospitals.

At least 2 and possibly 4 deaths have occurred in Miami, Fla.; Lexington and Louisville, Ky., following administration of Cutter's dextrose and saline bearing code number CM 8164. At least 8 other serious reactions have been reported, mostly from Southern communities. Several 100 liter bottles with this code number are unaccounted for, and the firms' shipping records are so incomplete as to make it impossible to trace and recover all the outstanding material quickly. Although the contaminant has not been identified, it appears to be a heavy growth of bacteria or mold. Many of the unopened bottles show a distinct cloudiness.

Physicians and hospital officials are urged to check their stocks for this code of 5 per cent dextrose in saline and if any is found to hold it and notify the nearest office of the Food and Drug Administration, which is working at top speed to recover all outstanding material.

This unfortunate incident again emphasizes the necessity for prompt notification of the American Medical Association and the Food and Drug Administration of any suspicious or unexpected reaction following the administration of a drug. Quick action by Dr. O'Donnell in notifying the Association of the reactions in his patients has no doubt saved the lives of many other persons. As yet Cutter Laboratories has offered no explanation of why this contamination was not detected before the product was distributed. The medical profession is entitled to know the facts in this case and to be assured that the drugs they purchase are safe.

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[2] Carotene and Vitamin A in the Body, editorial, J. A. M. A. **132:** 287 (Oct. 5) 1946.

[3] Fasold, H., and Heidemann, E. R.. Ztschr. f. d. ges. exper. med **92:** 53, 1933.

[4] Wendt, H.: München. med. Wchnschr. **82:** 1679, 1935.

[5] Anderson, H. H., and Soley, M. H.: Am. J. M. Sc. **195:** 313, 1938.

[6] Escamilla, R. T.: J. Clin. Endocrinol. **2:** 33, 1942.

[7] Canadell, J. M., and Valdecasas, F. G.: Experientia **3:** 35, 1947.

[8] Drill, V. A., and Truant, A. P.: Endocrinology **40:** 259, 1947.

[9] Johnson, R. M., and Baumann, C. A.: J. Biol. Chem. **171:** 513, 1947.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

April 30, 1948.

President Truman to Address National Health Assembly

President Truman will address the May 1 banquet of the four day National Health Assembly called to obtain suggestions for the proposed ten year national health program. Federal Security Administrator Oscar R. Ewing said that between six hundred and seven hundred physicians and health specialists were expected to attend. The meeting will be in fourteen sections.

Course on Atomic Radiation Effects

A first class of twenty-seven physicians has completed studies at Walter Reed Medical Center which included instruction on effects on the human body of atomic radiation and bacteriologic warfare. The army described the sixteen week basic science course as "revolutionary." Guest faculty members included more than fifty leading physicians and researchers of the United States and Canada. Diplomas were presented at graduation exercises by Col. Walter H. Moursund Jr., director of the course, following an address by Dr. Alan Chesney, dean of Johns Hopkins University School of Medicine.

Early Diagnosis of Cancer of Breast Advocated at Conference

Dr. Jay McLean of Washington, D.C., advocated clinical examination for cancer of women over 35 years of age every six months, at the three day session of the American Association for Study of Neoplastic Diseases. He declared that cancer mortality could be reduced considerably through improvement in the field of cancer of the breast alone. He emphasized the need for early diagnosis and public cooperation. Dr. George W. Ramsey, Washington, Pa., was elected president; Dr. Ramsey Spillman, New York, vice president; Dr. J. W. Lindsay, Washington, D. C., treasurer, and Dr. E. R. Whitmore, Washington, D. C., secretary. Named to the executive council were Drs. Lewis C. Pusch of York, Pa., Bruce H. Sisler of Memphis, Tenn., and Arthur Petersen of Chicago. Next meeting will be in the autumn in Atlantic City, N. J.

Congress on Tropical Medicine and Malaria

The fourth International Congress on Tropical Medicine and Malaria will be held here May 10 to 18 with scientists from thirty-seven countries presenting some one hundred and eighty papers before twelve convention sessions. Registrations begin May 9 at the Washington Hotel, with the opening session May 10 in the Commerce Department Auditorium and additional sessions in the National Museum Auditorium. There will be three official conference languages: English, Spanish and French. The program will include visits to the National Institute of Health, Naval Medical Research Institute, Army Medical Department and Research and Graduate School of the Agricultural Research Center at Beltsville, Md. A special session May 12 will commemorate the establishment by Walter Reed of mosquito transmission of yellow fever and on May 14, the fiftieth anniversary of mosquito transmission of malaria by Sir Ronald Ross will be observed. Mrs. Truman will receive the wives of the delegates May 13 at a White House tea.

Medical Legislation

STATE LEGISLATION

Mississippi

Bills Enacted.--H. 351 was approved March 13. It enacts a workmen's compensation law. S. 356 was approved March 24. It authorizes an appropriation of $1,500,000 toward construction and equipping of a teaching hospital in the School of Medicine of the University of Mississippi.

New Jersey

Bill Enacted.--A.J.Res. 2 has become joint resolution chapter 3 of the Laws of 1948. It creates a commission to make a survey of all voluntary charitable hospitals throughout the state to determine what steps can be taken to relieve existing overcrowding and to furnish additional revenue for operating costs to relieve the burden now being carried by the voluntary charitable hospitals.

South Carolina

Bills Enacted.—H. 353 has become Governor's Act No. 892 of the Acts of 1948. It provides for the chartering and method of organization and operation of nonprofit medical service plans furnishing medical service by physicians at the expense of the corporation to subscribers to the plan. Medical service includes all general and special medical services ordinarily provided by licensed physicians in accordance with the accepted practices of the community at the time the service is rendered. A physician is defined as any physician duly licensed to practice medicine in the state of South Carolina under the provisions of the medical practice act. S. 1130 has become Governor's Act No. 935 of the Acts of 1948. It amends the hospital licensing law by granting to institutions three years within which to comply with the rules, regulations and minimum standard provided for therein. S. 1559 was adopted April 1, 1948. It is a resolution directing the executive committee of the Board of Health to make a careful investigation of the allocation of funds to the different counties for county health work and to adopt a plan which shall distribute equitably such funds.

Virginia

Bills Enacted.--H.86 has become chapter 399 of the Laws of 1948. It provides regulations for the operation of the hospital construction fund which is utilized in accepting and dispensing funds to be used for the state hospital construction program. S. 76 has become chapter 528 of the Laws of 1948. It provides amendments to and reenactments of the law setting up annual medical scholarships at the Medical College of Virginia and the University of Virginia. S. 77 has become chapter 529 of the laws of 1948. It authorizes and empowers the governing boards of the Medical College of Virginia and of the University of Virginia to establish 35 nurses' scholarships of the annual value of $100 each. S. 106 has become chapter 531 of the Laws of 1948. It amends the medical practice act by authorizing the state board of medical examiners to suspend or revoke the certificate of a physician who has been the legally responsible head of a hospital the license of which has been revoked because of illegal practice or conduct or practices detrimental to the welfare of a patient therein by the state board of health. S. 107 has become chapter 491 of the Laws of 1948. It requires the annual renewal of certificates to practice medicine, homeopathy, osteopathy, chiropractic, naturopathy or chiropody on or before the 30th of June of each year. S. 304 has become chapter 544 of the Laws 1948. It creates within the Department of Health a division of alcohol studies and rehabilitation for the study of the problems of alcoholism, the treatment and rehabilitation of persons addicted to the excessive use of alcoholic beverages and the promotion of preventive and educational programs.

GOVERNMENT SERVICES

ARMY

STUDY OF EMERGENCY MEDICAL CARE

Col. William L. Wilson, M. C., has been engaged in a study of the integration of administration of medical care to the civilian population in the event of war. This study, which has been under way since approved by the Surgeon General in March, 1947, is being conducted in the Department of Public Health Administration of the Johns Hopkins School of Hygiene and Public Health. Colonel Wilson prior to the Normandy invasion was engaged in the planning and supervision of reestablishment of medical care for civilians in all liberated countries and Western Germany. Later he was chief of the public health and welfare branch of the Military Government of the United States zone of Germany.

DR. BEATTIE TO CONDUCT BASIC SCIENCE COURSE

Dr. John Beattie, research director of the Royal College of Surgeons, London, England, conducted on March 15-16 a course on the physiology of injury at the Army Medical Research and Graduate School, Washington, D.C., and also directed discussions at the Army Institute of Pathology. Dr. Beattie will make a four week tour of Army Medical installations throughout the country. During his seven years on the faculty of McGill University, Montreal, Canada, Dr. Beattie worked closely with Dr. Harvey Cushing of Boston on neurophysiologic research on the relation between the hypothalamus and anxiety states. He is perhaps best known for his work on blood transfusion and tissue repair following injury or disease; during the English blitz in the recent war he commanded the Blood Transfusion Service in England.

GENERAL KENNER HEADS SELECTION BOARD

Major Gen. Albert W. Kenner, a member of the personnel board in the office of the Secretary of the Army, has been appointed president of a selection board which will recommend officers of the Regular Army Medical Department for promotion to the permanent grades of lieutenant colonel, major and captain; other members of the board are Brig. Gen. Joseph I. Martin of the Brooke Army Medical Center, Fort Sam Houston, Texas; Brig. Gen. Walter D. Lowe, Surgeon General's Office; Col. John M. Hargreaves, Air Surgeon's Office; Col. Edwin H. Roberts, Fitzsimons General Hospital, Denver; Lieut. Col. Harold C. McKinley and Major Clarence N. Keen of the Adjutant General's Department. The last two officers are recorder and assistant recorder, respectively, and serve without vote. The board convened in Washington, D.C., about April 12.

ARMY AWARDS AND COMMENDATIONS

Captain Leslie Caplan

The Legion of Merit has been awarded to Capt. Leslie Caplan, M. C., A. U. S., now of Minneapolis. The citation read as follows: For exceptionally meritorious conduct in the performance of outstanding services as medical officer for 2,600 American prisoners of war, Luft IV, Gross Tychow, Germany, from Feb. 6, 1945 to April 16, 1945. Captain Caplan with complete disregard for his own personal comfort, health and safety, and in spite of a forced march of more than 600 miles during which the men were deprived of the ordinary necessities of life, so discharged his responsibilities that not a single life was lost. Although suffering from an injured leg, he worked ceaselessly and without complaint, encouraging those who were exhausted and assisting the sick and weak. The extraordinary courage, determination and devotion to duty displayed by him during this period exemplify the highest traditions of the armed forces of the United States. Dr. Caplan graduated from Ohio State University College of Medicine, Columbus, in 1936 and entered military service in July 1941.

NAVY

RESERVE MEDICAL DIVISION

The commandant of the Fourth Naval District announces that Dr. Everett H. Dickinson, Cynwyd, Pa., has been appointed commanding officer of Volunteer Medical Reserve, Medical Division 4-9, U.S. Naval Reserve. Dr. Dickinson served in World War II as a captain of the naval medical reserve corps. The following physicians, all veterans, are members of the staff of this division: Capt. Howard E. Twining, executive officer; Comdr. John G. Hand; Comdr. George D. Geckeler; Comdr. Herbert P. Harkins; Comdr. George Lorenz Jr.; Comdr. David D. Northrop; Comdr. Harry S. Weaver; Lieut. Comdr. Lester L. Bower; Lieut. Comdr. Paul C. Bradford; Lieut. Comdr. Arthur A. Hartley; Lieut. Comdr. John B. Jacobs, Lieut. Comdr. Robert J. McNeill; Lieut. Comdr. Frederick W. Jarvis; Lieut. Comdr. Arthur W. Waddington; Lieut. Comdr. Karl H. Ziegenhorn; Lieut. (jg) Robert P. Gouldin and Lieut. (jg) Irving L. Lichtenstein.

Physicians who are interested may obtain information from the Commandant, Fourth Naval District, U. S. Naval Base, Philadelphia.

PERSONALS

Lieut. Comdr. Justin O. York of Santa Ana, Calif. and Lieut. (jg) Charles R. Stewart of Pittsburgh, both formerly in the naval reserve, have transferred to active duty status.

Capt. John M. Bachulus, at present on the staff of the Commander in Chief of Naval Forces, Eastern Atlantic and Mediterranean, will represent the United States Government at the Health Congress of the Royal Sanitary Institute at Harrogate, England, May 24-28.

Captains Omar J. Brown and Clark G. Grazier have completed a course in internal medicine at Cornell University Medical College, New York, and have been ordered to duty at naval hospitals.

SOCIETY NEWS

Rear Admiral H. Lamont Pugh (MC), assistant chief of the Bureau of Medicine and Surgery, addressed the section on general practice of medicine of the District of Columbia Medical Society, Washington, D. C., on "The Role of the General Practitioner in Modern Medicine."

VETERANS ADMINISTRATION

NEW CHIEF OF PROFESSIONAL SERVICE

Dr. Roy A. Wolford, Washington, D. C., has been appointed assistant medical director for professional service in the Veterans Administration, Department of Medicine and Surgery, and will succeed Dr. Paul B. Magnuson as chief of professional service. Dr. Magnuson was recently appointed medical director of the Veterans Administration. Dr. Wolford is a graduate of the University of Maryland Medical School; he interned at the Maryland General Hospital, Baltimore, and took his residency training at St. Joseph's Hospital, Lancaster, Pa. He served in World War I, following which he entered the U. S. Public Health Service, then in 1924 transferred to the Veterans Bureau. He was on Army duty during World War II with the rank of colonel and assigned to the Veterans Administration. He has served at a number of veterans' hospitals and has been at the central office in Washington, D. C., since 1940 as assistant medical director for tuberculosis and assistant director of the Tuberculosis Division. Dr. Magnuson concluded the announcement by stating that Dr. Wolford had demonstrated his ability as an outstanding physician and inspiring leader and that his appointment is part of the program to accord Veterans Administration physicians, "old and new," the recognition they deserve on the basis of their abilities.

HOSPITAL AT MARLIN, TEXAS

Bids for the construction of a two hundred bed general hospital for veterans at Marlin, Texas, will be opened in Washington May 25. The project includes the main hospital building, manager's quarters, apartment building for the staff, nurses' quarters, attendants' quarters, boiler house, laundry building, incinerator building, 150,000 gallon steel water tank and tower, steel flag pole and radial brick chimney, roads, walks, grading, sewage system, elevators and refrigerating system. The buildings will be of concrete, brick-faced exterior walls with stone trim and backed with hollow tile, reinforced concrete floors and built-up roofs.

STREPTOMYCIN CONFERENCE

The Veterans Administration's Fifth Streptomycin Conference was held at the Hotel Knickerbocker in Chicago April 15-18. The Army, Navy, Public Health Service, National Research Council, National Tuberculosis Association and American Trudeau Society, the pharmaceutic industry, the American Medical Association and hospitals were represented. Among others, the following Veterans Administration consultants took part: Drs. Brian Blades, Ralph Ghormley, Corwin Hinshaw, Esmond Long and Monroe Romansky.

NEW CHIEF OF NEUROPSYCHIATRIC SERVICE

Dr. Paul B. Magnuson, chief medical director of the Veterans Administration, has announced the appointment of Dr. Harvey J. Tompkins of Arlington, Va., as head of the neuropsychiatric service in the department of medicine and surgery to succeed Dr. Daniel Blain, who resigned to become medical director of the American Psychiatric Association. Dr. Tompkins graduated in medicine at Loyola University of Chicago. He joined the Veterans Administration in 1935 and, after serving at hospitals in various states, was assigned to the central office in 1945 as assistant chief of the neuropsychiatry division. He is associate professor in psychiatry at Georgetown University School of Medicine and is certified by the American Board of Psychiatry and Neurology.

PUBLIC HEALTH SERVICE

CREATE CANCER CONTROL COMMITTEE

A committee comprising ten cancer control experts has been created to advise the National Cancer Institute in its campaign to reduce cancer deaths by facilitating prompt detection and treatment. All members of the committee are physicians and public health officials. They will advise the institute on cancer control policy and on requests submitted by State health departments, universities and hospitals for special control project funds. The committee was formed to prevent duplication of efforts and to assure efficient use of federal funds for cancer control. The chairman is Dr. Frank E. Adair, New York. Other members of the committee are: Dr. Herman E. Hilleboe, commissioner, New York State Department of Health; Dr. Charles F. Branch, assistant director, American College of Surgeons, Chicago; Dr. Frank B. Queen, director, Cancer Control Section, Oregon State Health Department; Dr. W. Edward Chamberlain, Philadelphia; Dr. Robert A. Moore, Washington University School of Medicine, St. Louis; Dr. Edmund G. Zimmerer, director of cancer control, Iowa State Department of Health; Dr. Herbert L. Lombard, director, Division of Cancer and Other Chronic Diseases, Massachusetts Department of Public Health; Dr. Charles S. Cameron, medical director, American Cancer Society, New York; Dr. William D. Stovall, state laboratory of hygiene, Madison, Wisconsin. In their first meeting the committee recommended approval of fourteen applications for funds totaling $292,234 for special cancer control projects. These grants ranged from funds for establishing cancer control as part of the public health curriculum in the Harvard and Yale graduate schools to the equipment and operation of a mobile cancer detection trailer for rural Florida and the evaluation of the new cytologic diagnostic technic. All recommendations by the committee have been approved by the National Advisory Cancer Council. The next meeting of the Cancer Control Committee will be held early in June in Washington, D. C.

DR. TOPPING APPOINTED ASSOCIATE DIRECTOR

The U.S. Public Health Service announces the appointment of Dr. Norman Topping to be associate director of the National Institute of Health at Bethesda, Md. This position was recently created to relieve the director, Dr. R.E. Dyer, of many demands resulting from increased activity in medical research. Dr. Topping, a native of Missouri, graduated from the University of Southern California and joined the Public Health Service in 1936. He is a member of the U.S. Typhus Commission and president-elect of the American Society of Tropical Medicine; he has received various awards for research in infectious diseases.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

University Promotions.—Stanford University School of Medicine, San Francisco, has announced the following promotions, effective September 1: Dr. Sidney Raffel becomes professor of bacteriology; associate professorships were announced for Drs. Lowell A. Rantz and David A. Rytand in medicine, Dr. Lelland J. Rather in pathology, David C. Regnery, Ph.D., in biological sciences and Dr. Victor Richards in surgery.

Survey of Cancer Facilities.—A survey of cancer facilities in San Diego County, one of a series being conducted in California at the request of local societies, drew attention to the need for (1) a tumor record registry, (2) a fourth tumor board in addition to the three now functioning, (3) extension of public health nursing services to cancer patients in rural areas of the county, (4) educational programs for lay and professional persons and (5) creation of a panel of physicians who will accept referred cancer patients. Data for the survey were gathered through examination of mortality statistics, study of the state hospital survey report, survey of existing institutional facilities, personal interviews and a questionnaire sent to every member of the county medical society.

Personal.—Dr. Konstantin Sparkuhl, Los Angeles, has been decorated by the Chinese Government with the Breast Order of Yun Hui for work as public health consultant as a member of the G-5 Staff of the Formosa Liaison Group, 1945-1946.

CONNECTICUT

Conference of Industrial Physicians.—The Committee on Industrial Health of the Connecticut State Medical Society will sponsor the spring meeting of the New England Conference of Industrial Physicians and Surgeons at the Hotel Bond, Hartford, May 27. Cooperating groups include the Manufacturers Association of Connecticut, Connecticut State Nurses' Association and the Connecticut Safety Society.

COLORADO

Radio Program on Heart Disease.—A program on heart disease produced by radio station KLZ of Denver in cooperation with the Colorado State Medical Society will go on the air as a thirteen week series starting Sunday, May 2, at 10:15 p.m. (Mountain standard time). The format consists of about eleven minutes of documentary dramatization followed by a four minute discussion between the announcer and a participating physician.

ILLINOIS

Residency in Physical Medicine.—A residency training program in physical medicine has been approved by the Council on Medical Education and Hospitals of the American Medical Association, at the 3,500 ward Veterans Administration Hospital at Hines. The Physical Medicine Rehabilitation Service is a large, well organized department, fully equipped for both diagnostic and therapeutic procedures. Residents with veteran status receive $3,300 per year. If interested, write to Dr. K. A. Carroll, Manager, Veterans Administration Hospital, Hines, Ill.

Annual Meeting of State Society.—The Illinois State Medical Society will hold its annual meeting May 10-12 at the Palmer House, Chicago, under the presidency of Dr. Irving H. Neece, Decatur. Out of state speakers include:

Henry W. Woltman, Rochester, Minn., Differential Diagnosis of Poliomyelitis.
Carl H. McCaskey, Indianapolis, Significance of Hoarseness.
Irving S. Wright, New York, Oration in Medicine: Use of Anticoagulants in Treatment of Diseases of the Heart and Blood Vessels.
Karl H. Pfuetze, Cannon Falls, Minn., Present Status of Streptomycin.
Leroy A. Calkins, Kansas City, Kan., Management of Labor.
H. Trendley Dean, D. D. S., Relation of Fluorine to Dental Caries.
Leo G. Rigler, Minneapolis, Early Diagnosis of Cancer of Stomach.
George M. Curtis, Columbus, Ohio, Treatment of Hyperthyroidism.
Robert A. Moore and Edward Mallinckrodt, St. Louis, Tumors of the Testes.
Catherine S. Amatruda, New Haven, Conn., Problems of Growth and Development.
Frank H. Lahey, Boston, Oration in Surgery: Surgical Management of Gastric and Duodenal Lesions.

Various section meetings have been scheduled for the morning of May 11. On Tuesday evening at the annual dinner honoring the president Franklyn Bliss Snyder, Ph.D., president of Northwestern University, will be the principal speaker. The Woman's Auxiliary will meet at the Congress Hotel May 10-11. A number of special societies and alumni groups will meet in conjunction with the state society. Technical and scientific exhibits will be on display.

Chicago

Fourth Cancer Center Opens.—A cancer detection clinic was opened March 30 at Mercy Hospital to serve women. A second unit at the hospital will open April 8 for men. The city's four centers will be serving 700 persons a month. There is a waiting list of several thousand.

Personals.—Dr. J. Garrott Allen, University of Chicago School of Medicine, has been awarded the John J. Abel prize for his research on control of bleeding due to irradiation. The award was conferred by the American Society for Pharmacology and Experimental Therapeutics. Charles T. Craddock, for eleven years director of sales of the Edgewater Beach Hotel, has been appointed general superintendent of the Municipal Tuberculosis Sanitarium to succeed Dr. Leo M. Czaja, who resigned recently.

Pusey Memorial Lecture.—J. Christian Bay, Litt. D., librarian emeritus of the John Crerar Library, will delivery the second William Allen Pusey Memorial Lecture of the Institute of Medicine of Chicago on Friday evening, May 28, at the Palmer House on "The Search for the Vital Principle."

Society News.—The North Shore Branch of the Chicago Medical Society will meet at the Edgewater Beach Hotel May 4 for a fellowship gathering at 6:30 p.m. and a scientific meeting at 8:00 p.m. Dr. Arthur C. Curtis, head of the department of dermatology, University of Michigan Medical School, Ann Arbor, will be the guest speaker on "Modern Treatment of Syphilis."

MASSACHUSETTS

Boston Alumni Meeting.—The Alumni Association of Boston University Medical School will hold its annual meeting May 7 in the Medical School Auditorium. An informal luncheon will be held at 12:30 p.m. on the medical school campus, and a reunion and dinner at 5:30 p.m. at the Hotel Statler.

Tufts Medical Alumni Lecture.—The annual Medical Alumni Lecture will be given at Tufts College Medical School, Boston, May 5 at 4 p.m. Dr. Daniel L. Lynch, Boston, of the class of 1907, will speak on problems in industrial medicine. All physicians and students are invited to attend.

MICHIGAN

Dr. Cummings Heads State Department of Health.—Dr. George D. Cummings of the State Bureau of Laboratories, Lansing, became acting commissioner of the Michigan Department of Health March 17, succeeding Dr. John K. Altland, who resigned and returned to his former position as director of the department's Bureau of Local Health Services. Dr. Cummings has been a member of the state health department for twenty-two years, having been promoted in the Bureau of Laboratories from junior bacteriologist in 1926 to director of the bureau in June 1944. He is a graduate of Wayne University College of Medicine, Detroit, 1943, and received a doctor of philosophy degree from the University of Michigan, Ann Arbor, 1934.

NORTH CAROLINA

Appoint State Health Officer.—Dr. John W.R. Norton, Chattagooga, Tenn., was elected North Carolina State Health Officer at a meeting of the State Board of Health, called to select a successor to Dr. Carl V. Reynolds, Raleigh, who will retire June 30. Dr. Norton is graduate of Vanderbilt University School of Medicine, Nashville, Tenn., 1928. He was superintendent of health at Rocky Mount from 1931 to 1935. In 1936 he joined the state board of health as assistant director of county health work and later as assistant director of preventive medicine. He served the University of North Carolina as professor of public health administration from September 1938 to November 1940, when he entered the U.S. Army. Since that time he has been with the Tennessee Valley Authority at Chattanooga, Tenn.

NEW YORK

Annual State Medical Meeting.—The annual meeting of the Medical Society of the State of New York will be held May 17-21 at the Hotel Pennsylvania, New York. Scientific sessions will be held on Wednesday and Friday afternoons, at which the following will be guest speakers:

Thomas Francis Jr., Ann Arbor, Mich., Distribution of Poliomyelitis Virus in the Community.
Arthur L. Watkins, Boston, Contributions of Physical Medicine in Poliomyelitis.

The A. Walter Suiter Lecture will be delivered Friday by Dr. Alfred Steiner, New York, on significance of cholesterol in coronary arteriosclerosis. There will be numerous section meetings. Tuesday will be Teaching Day, for which the Council Committee on Public Health and Education of the society will present a series of lectures. The annual banquet will be on the Penn Top Wednesday. The annual convention of the Woman's Auxiliary will be May 16-19 at the Hotel Pennsylvania.

New York City

Postgraduate Instruction.—The Rockland County Medical Society will hear the following lecture at the Summit Park Sanatorium, Pamona, at 4:30 p.m. May 5: John C. M. Brust, Syracuse, "Cancer of the Rectum and Colon - Present Day Concepts."

Miller Memorial Lecture.—Rene J. Dubos, Ph.D., member of the Rockefeller Institute for Medical Research, will deliver the Adam M. Miller Memorial Lecture on "The Tubercle Bacillus and Tuberculosis" May 4, 4 p.m., at the Polhemus Memorial Building, Long Island College of Medicine.

Alumni Day.—The Long Island College of Medicine will observe Alumni Day May 8 at the Knights of Columbus Club, Brooklyn. The speakers will be: Drs. A. W. Martin Marino, president of the Alumni Association, and James A. Curran, president of the College of Medicine. Dinner reservations should be made before May 3 to the Alumni Association, Long Island College of Medicine, 350 Henry Street, Brooklyn 2.

OKLAHOMA

Annual State Meeting.—The Oklahoma State Medical Association will hold its annual meeting May 17-19 at the Skirvin Hotel, Oklahoma City, under the presidency of Dr. Paul B. Champlin, Enid. All section meetings will begin at 9 a.m. and general sessions at 2 p.m. Guest speakers at the general sessions include:

Helen B. Taussig, Baltimore, Malformations Amenaable to Surgery: Diagnosis and Indications for Operations.
Arild E. Hansen, Galveston, Texas, Rheumatic Fever as a Diagnostic Problem.
Jack R. Ewalt, Galveston, Texas. General Practitioner's Responsibility in Psychiatry.
Andrew W. McAlester III, Kansas City, Mo. Management of Eye Diseases.
Laman A. Gray, Louisville, Ky., Hormone Therapy.
Richard B. Cattell, Boston, Surgical Management of Carcinoma of Rectum.
Franklin H. Top, Detroit, Epidemiology and Treatment of Poliomyelitis.
Vincent Vermooten, Dallas, Texas. Injuries of Urethra, Their Diagnosis and Care.
Leo H. Garland, San Francisco, Present Status of Radiation Therapy in Cancer.

A sumposium on "What's New in Medicine" will be held Tuesday at 8 p.m. with guest speakers participating. Both technical and scientific exhibits and round table luncheons have been arranged. The president's inaugural dinner dance will be at 7 p.m. Wednesday, with Dr. Alan Moritz, Boston, speaking on "Medicine's Contribution to Crime Detection." The Women's Auxiliary will meet May 16 at the Skirvin Hotel.

SOUTH CAROLINA

State Society Centennial Meeting.—The South Carolina Medical Association will hold its centennial meeting in Charleston May 12-14. A history of the association, prepared by Dr. Joseph I. Waring, Charleston, and bound in book form, will be distributed to members. Special speakers who will appear on the program are: Dr. James E. Paullin, Atlanta, Ga., representing the American Medical Association; Dr. Warren W. Quillian, Coral Gables, Fla., representing the Florida Medical Association; Dr. Isaac A. Bigger, Richmond, Va., representing the Medical Society of Virginia; and Dr. Verling K. Hart, Charlotte, N. C., representing the Medical Society of the State of North Carolina. Dr. Reginald Fitz, Boston, will speak at the banquet. Dr. Olin B. Chamberlain, Charleston, is the president and Dr. Robert B. Durham, Columbia, the president-elect.

GENERAL

Bacteriologists' Meeting.—The Society of American Bacteriologists will be guests of the Minnesota Bacteriologists at their general meeting at the Nicollet Hotel in Minneapolis May 11-14. Papers will be presented in the various fields of bacteriology. The president's reception and the annual banquet will be held Wednesday evening.

Anniversary of the Discovery of Radium.—At an American Cancer Society dinner in Philadelphia March 31, commemorating the fiftieth anniversary of the discovery of radium by Pierre and Marie Curie, their daughter Mlle. Eve Curie, French author and journalist, received a $10,000 grant for the work of Dr. Antoine Lacassagne of the Radium Institute in Paris. Mlle. Curie said that the money would be used to buy an infrared spectrograph for the institute.

Memorial to Pharmacists.--At ceremonies in the offices of the American Pharmaceutical Association, Washington, D. C., May 7, a memorial to all pharmacists who served in the wars of the nation will be presented by the donor, Henry A. B. Dunning, Sc.D., past president of the American Pharmaceutical Association. Honorable Kenneth C. Royall, Secretary of the Army, will give the principal address. Dr. Robert L. Swain, chairman of the Committee on Dedication, will preside.

Ophthalmological Society Meeting.--The American Ophthalmological Society will hold its annual meeting at the Homestead, Hot Springs, Va., May 17-19 under the presidency of Dr. Henry C. Haden, Houston, Texas. Among the subjects of numerous papers to be presented are corneal transplantation in keratoconus, myopia cures, surgical procedures in the treatment of retinal vascular disease, epidemiologic observations on epidemic keratoconjunctivitis and ocular lymphomas.

Federation for Clinical Research.—The national meeting of the American Federation for Clinical Research will be held in Chalfonte-Haddon Hall, Atlantic City, N.J., May 3-4. The program will begin at 8 p.m. with the first public showing of the colored film "Kidney Function in Health." Among the subjects of papers to be presented are: primary atypical pneumonia; reasons for failure of "dicumarol" in treatment of coronary thrombosis; hyaluronidase, and electrolyte metabolism in gastric cancer and Addison's disease.

Meeting of Genito-Urinary Surgeons.—The American Association of Genito-Urinary Surgeons will hold its annual meeting May 12-14 at the Skytop Lodge, Skytop, Pa., under the presidency of Dr. Cyrus E. Budford, St. Louis. Among the subjects to be discussed are lymphosarcoma of the kidney; vesicointestinal fistulas; radical perineal prostatectomy for cancer of the prostate; an analysis of 221 cases; effect of neutron rays on the testicle; role of sex hormones in sexual differentiation and in sex abnormalities, and pregnancy in the presence of reduced renal tissue.

Annual Meeting of Psychiatrists.—The American Psychiatric Association will have its one hundred and fourth annual meeting May 17-20 at the Statler Hotel, Washington, D.C., under the presidency of Dr. Winfred Overholser, Washington, D.C. Among the subjects to be discussed are: atomic energy in medicine, psychiatry among the Chinese, brain surgery and glutamic acid in increasing intelligence. Subjects of round table dinner meetings on Tuesday evening include neuropsychiatric service in general hospitals and aggression of childhood. There will be a symposium on emotional factors in chronic headaches Wednesday afternoon.

Association of American Physicians.—The annual meeting of the Association of American Physicians will be held at the Chalfonte-Haddon Hall, Atlantic City, N.J., May 4-5 under the presidency of Dr. Alvah H. Gordon, Montreal, Canada. Subjects to be discussed include: hormonal and vitamin factors in intestinal absorption; diuresis in patients with nephrosis; treatment of bacterial endocarditis; auscultation of the heart, a neglected subject; management of ulcerative colitis; the changing aspect of poliomyelitis; systematic manifestations of rheumatoid arthritis. The George M. Kober Medal will be presented to Dr. Warfield T. Longcope, Baltimore. The dinner address Tuesday at 7:30 p.m. will be given by Dr. O. H. Perry Pepper, Philadelphia.

American Urological Association.--The annual meeting of the American Urological Association will be held at the Hotel Statler, Boston, May 17-20, under the presidency of Dr. Herbert H. Howard, Boston. Among the subjects under discussion are: urinary tract calculi in recumbent patients, late renal changes in paraplegic persons, treatment of ureteral colic, thoracolumbar sympathetic block, and the urologist and artificial insemination. Dr. Arthur Jacobs, Glasgow, Scotland, and Dr. J. G. Yates Bell, London, England, will be guest speakers on Tuesday's program. There will be a symposium on genitourinary tuberculosis on Tuesday; and on Wednesday the prize essay, "Formation of an Artificial Bladder with Perfect Continence: An Experimental Study," will be presented by the writer, Dr. Seymour W. Rubin, Baltimore. The Ramon Guiteras Lecture, "Clinical Endocrinology and the Cancer Problem," will be given by Dr. Cornelius P. Rhoads, New York. Presentation of the third annual award for research in human male reproductive tract will be presented to Dr. Charles B. Huggins, Chicago, who will address the society on "Recent Studies of Reproductive Tract Physiology." A motion picture program and scientific and technical exhibits have been arranged.

HAWAII

Annual Meeting of Hawaii Medical Association.--The Hawaii Territorial Medical Association will hold its annual meeting May 6-9 in Honolulu under the presidency of Dr. Robert B. Faus of that city. Guest speakers include:

Samuel C. Harvey, New Haven, Conn., Recent Advances in Surgery.
Paul Klemperer, New York, Pathologic Anatomy and Biology.
Mr. Theodore R. Sills, Public Relations Counsel of the American Medical Association, Chicago, The Public Looks at the Doctor.
W. Lloyd Aycock, Boston, Epidemiologic Significance of the Behavior of Poliomyelitis.

The first exhibit of the Hawaii Physicians' Art Association will be held in the Honolulu County Medical Library during the meeting. Scientific exhibits relating to cancer and leprosy will be displayed in the headquarters building.

Breakfast round table discussions will be held at the Pacific Club Saturday, one on surgery led by Dr. Harvey and the other on pathology led by Dr. Klemperer.

Marriages

EDWARD LEROY PROCTOR, Conway, S. C., to Miss Mary Roberta Woodard at Charleston, February 28.

LAY MARTIN FOX, Baltimore, to Miss Jean Selby of Mendota, Ill., Dec. 30, 1947.

WILLIAM DONALD BAKER, Cleveland, to Miss Mary Lou Belcher of Youngstown, recently.

Deaths

William Lester Smith ⊕ Senior Surgeon, U. S. Public Health Service, retired, Carbondale, Ill.; born in Toledo, Ill., Jan. 1, 1883; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; entered the Public Health Service in 1919 and retired in 1946; stationed at Marine hospitals in Norfolk, Va., Staten Island, N. Y., New Orleans and Louisville; fellow of the American College of of Physicians; during World War I served overseas with the British Army and as a captain in the medical corps of the U. S. Army, receiving the Purple Heart and the British Military Cross; in 1943 the Boy Scouts of America awarded him the Silver Buffalo for 'distinguished service to boyhood'; chief medical officer of the Scout National Jamboree held at Washington, D. C., in 1937; died in the U. S. Marine Hospital in Kirkwood, Mo., February 15, aged 65, of pneumonia.

Harry Eaton Stewart ⊕ New Haven, Conn.; born in St. Louis in 1887; Yale University School of Medicine, New Haven, 1910; attached to the Surgeon General's Office, U. S. Army, during World War I as assistant director of physiotherapy and director of physiotherapy in the United States Public Health Service and Veterans Bureau; for many years consultant in physiotherapy at the Veterans Administration; major, medical reserve corps, U. S. Army, not on active duty; past president of the Connecticut State Physical Therapy Society; consultant in physical medicine at the Norwalk General Hospital in Norwalk, Conn.; died January 6, aged 60, of coronary occlusion.

Dudley Anderson Robnett ⊕ Columbia, Mo.; born in Columbia, Mo., May 28, 1895; Johns Hopkins University School of Medicine, Baltimore, 1919; associate professor of pathology at the University of Missouri School of Medicine; member of the founders group of the American Board of Surgery; member of the Western Surgical Association; fellow of the American College of Surgeons; chairman of the Missouri division of the American Cancer Society; on the staffs of the State Hospital in Fulton, Boone County General Hospital and Ellis Fischel State Cancer Hospital; died suddenly January 25, aged 52.

Charles Moore Franklin ⊕ Union Springs, Ala.; Columbia University College of Physicians and Surgeons, New York, 1898; an examining physician for the local draft board during World War I; served as a member of the city board of education and as county and city health officer; past president of the Bullock County Medical Association; surgeon of the Central Georgia Railroad and of the Alabama Power Company; died in Montgomery February 2, aged 74, of acute myocarditis.

Edward Andruss, Holden, Mo.; Kansas City (Mo.) Homeopathic Medical College, 1897; member of the American Medical Association; died January 14, aged 84, of coronary occlusion.

Abraham Henry Bowers, Jamestown, N. Y.; University of Wooster Medical Department, Cleveland, 1886; served as county coroner, city physician and city health officer; died Dec. 28, 1947, aged 94, of chronic myocarditis.

John Calvin Brink, Gary, Ind.; Indiana University School of Medicine, Indianapolis, 1942; interned at the Methodist Hospital in Indianapolis; served a residency in surgery at the City of Detroit Receiving Hospital in Detroit; died in the Methodist Hospital January 5, aged 35.

James Samuel Christian, Alberta City, Ala.; Birmingham Medical College, 1912; member of the American Medical Association; died in the Druid Hospital, Tuscaloosa, January 18, aged 64.

Frank Hubert Crawford, Mount Sidney, Va.; College of Physicians and Surgeons, Baltimore, 1896; member of the American Medical Association; died January 14, aged 74, of cerebral hemorrhage.

William John Dailey, Oakland, Calif.; Minneapolis College of Physicians and Surgeons, 1911; veteran of the Spanish-American War; died January 9, aged 63, of cerebral hemorrhage.

Margaret Lincoln Dale, Kansas City, Kan.; University of Kansas School of Medicine, Kansas City, 1933; interned at the New York Infirmary for Women and Children in New York; died in the Swedish Hospital in Seattle January 31, aged 45, of cardiovascular disease.

Leonidas DeLaine, Greenville, Miss.; Meharry Medical College, Nashville, Tenn., 1916; served during World War I; died January 11, aged 57, of heart disease.

Faust Stansfield Delong, Richfield Springs, N.Y.; Columbia University College of Physicians and Surgeons, New York, 1901; member of the American Medical Association; died in DeLand, Fla., January 15, aged 70.

John Casimer Dubiel, Chicago; Loyola University School of Medicine, Chicago, 1932; member of the American Medical Association; died in St. Luke's Hospital February 3, aged 41.

George Reese Du Vall, Western, Neb.; University Medical College of Kansas City, Mo., 1904; member of the American Medical Association; died in Fairbury Dec. 21, 1947, aged 65.

Harry H. F. Fredrick, Westfield, Wis.; Detroit College of Medicine, 1894; also a graduate in pharmacy; died January 16, aged 84.

Maurice Arthur Gilbert ⊕ Chelsea, Mass.; Tufts College Medical School, Boston, 1914; served during World War I; affiliated with the Whidden Memorial Hospital in Everett and the Chelsea Memorial Hospital; died January 18, aged 60, of carcinoma.

Ray Carr Green, San Bernardino Calif.; Northwestern University Medical School, Chicago, 1928; member of the American Medical Association; served during World War II; at one time assistant surgeon in the U. S. Public Health Service; died Jan. 16, 1947, aged 47, of coronary thrombosis.

Alfred Wilbur Hadley, Indianapolis, Indiana University School of Medicine, Indianapolis, 1910; member of the American Medical Association; served during World War I; for many years chief surgeon at the Indiana State Soldiers' Home Hospital in Lafayette; died in the Veterans Administration Hospital January 16, aged 74, of cerebral hemorrhage.

Frederick Henry Harnagel, Chicago; St. Louis University School of Medicine, 1912; found dead in a hotel at Pontiac, Ill., February 10, aged 61, of coronary thrombosis.

William Hoddick, Buffalo; University of Buffalo School of Medicine, 1886; died in the Edward J. Meyer Memorial Hospital January 20, aged 85, of carcinoma of the colon.

Thomas Howell, New York; Dartmouth Medical School, Hanover, N.H., 1896; served as superintendent of the Overlook Hospital in Summit, N.J., and the Worcester City (Mass.) Hospital; head of the outpatient department and formerly superintendent of the New York Hospital Cornell Medical Center, where he died January 24, aged 79, of carcinoma of the prostate.

Roy Sterling Hubbs, Butler, Ohio; Pulte Medical College, Homeopathic, Cincinnati, 1896; died January 16, aged 73.

Burton Leroy Jacobs, Chattanooga, Tenn.; George Washington University School of Medicine, Washington, D.C. 1916; fellow of the American College of Surgeons; member of the American Medical Association; past president of the Chattanooga-Hamilton Counties Medical Society; served during World War I; affiliated with the Pine Breeze Sanatorium and the Baroness Erlanger Hospital; died January 14, aged 64, of coronary thrombosis.

John Walter Jeans, Prosperity, Mo.; University Medical College of Kansas City, 1895; died January 25, aged 83.

Walter Robert Johnson, Richmond Hill, N.Y.; Cornell University Medical College, New York, 1945; interned at the Long Island College Hospital in Brooklyn; served during World War II; died in San Francisco January 2, aged 26, of injuries received in an automobile accident.

John Joseph Kane ⊕ Prairie Du Chien, Wis.; Loyola University School of Medicine, Chicago, 1921; affiliated with the Beaumont Hospital and the Prairie Du Chien Sanitarium; died recently, aged 53, of coronary occlusion.

George Logan Kennedy ⊕ Ninety Six, S. C.; Medical College of the State of South Carolina, Charleston, 1921; member of the board of trustees of the high school; died January 12, aged 53, of congestive heart disease.

William Lee Kirkpatrick, Waynesville, N. C.; University of Nashville (Tenn.) Medical Department, 1894; Vanderbilt University School of Medicine, Nashville, 1894; member of the American Medical Association; an honorary member of the staff of Haywood County Hospital, where he died January 11, aged 77, of injuries received in an automobile accident.

Henry Knox ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1890; died January 4, aged 75, of bronchopneumonia.

John Elliot Langstaff, Morristown, N. J.: University of Toronto Faculty of Medicine, Toronto, Canada, 1878; at one time practiced in Brooklyn, where he served on the staff of St. John's Hospital; died in Bernardsville January 15, aged 91, of arteriosclerosis and benign hypertrophy of the prostate.

William Marshall Love ⊕ Monroe, N.C.; North Carolina Medical College, Charlotte, 1915; past president of the Union County Medical Society; died January 22, aged 62.

William McKeage, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1892; member of the American Medical Association; died in the Masonic Home January 5, aged 78.

Archibald McMillan, Athol, Mass.; Medical School of Maine, Portland, 1904; member of the American Medical Association; served with the Canadian Army during World War 8; died January 16, aged 75.

Harry Hilts Maynard ⊕ New Haven, Conn.; Yale University School of Medicine, New Haven, 1916; a brigadier general in the medical corps, Army of the United States, during World War II serving as commanding officer of the 12th Medical and General Dispensary in London; affiliated with Grace Hospital; died in the Hospital of St. Raphael January 8, aged 60, of bronchopneumonia.

Nina Polson Merritt, Alton, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; member of the American Medical Association; died January 8, aged 75.

Schuyler Nichols, Herington, Kan.; Barnes Medical College; St. Louis, 1901; member of the American Medical Association; killed January 25, aged 72, in an automobile accident.

Richard J. O'Brien, Wauwatosa, Wis.; Chicago Medical School, 1922; formerly associated with the Indian Service; died January 3, aged 57.

Leon Morton Ochs, St. Louis; State University of Iowa College of Medicine, Iowa City, 1910; served as chief of the medical service at the Veterans Administration Facility at Jefferson Barracks; died January 8, aged 61.

Noah Samuel Peters, Bristol, Tenn.; Hospital College of Medicine, Louisville, 1900; died recently, aged 74.

Charles Henry Phillips ⊕ Beverly, Mass.; Medical School of Maine, Portland, 1900; formerly chairman of the board of health; affiliated with the Beverly Hospital; died December 22, 1947, aged 76, of Hodgkin's disease.

Ernest Dean Pillsbury, Stoughton, Mass.; Tufts College Medical School, Boston, 1896; member of the American Medical Association; an officer during World War I; served in the U. S. Public Health Service reserve and on the staffs of various Veterans Administration hospitals; died January 6, aged 79, of pneumonia.

Hallie Tecumseh Pitts, Henderson, Tenn.; University of Tennessee Medical Department, Nashville, 1905; member of the American Medical Association; health officer for many years; died December 27, 1947, aged 65, of diabetes mellitus and heart disease.

Charles Henry Poole, Ruffs Dale, Pa.; Jefferson Medical College of Philadelphia, 1907; served during World War I; affiliated with the Henry Clay Frick Memorial Hospital in Mount Pleasant; died January 7, aged 63, of coronary occlusion.

John P. Ramsay ⊕ Vincennes, Ind.; Medical College of Ohio, Cincinnati, 1889; died in January, aged 85.

Charles Thomas Riggs, Upton, Ky.; Kentucky School of Medicine, Louisville, 1904; died January 29 aged 71.

Benjamin Bissell Robins ⊕ Bristol, Conn.; University of the City of New York Medical Department, New York, 1894; past president of the Hartford County Medical Association; for many years health officer and police surgeon; died January 9, aged 77, of heart disease.

Edgar Smith ⊕ Lockhart, Texas; University of Louisville (Ky.) Medical Department, 1897; served on the selective service boards during World Wars I and II; died Dec. 30, 1947, aged 75, of coronary occlusion.

Edgar L. Vermilya, Fremont, Ohio; Toledo Medical College, 1897; member of the American Medical Association; for many years city health commissioner; affiliated with the Memorial Hospital; died Dec. 19, 1947, aged 73, of lymphatic leukemia.

Harry Hall Winters ⊕ Tuskegee, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1924; died January 29, aged 50, of coronary thrombosis.

Benjamin Collins Woodbury, Boston; Boston University School of Medicine, 1906; trustee and member of the staff of the Hahnemann Hospital; died January 22, aged 65, of cerebral thrombosis.

Ozro Wright, Seiling, Okla.; Kansas City Medical College, 1904; died in Clinton recently, aged 83, of pneumonia.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 9, 1948

The National Health Service

Of the various objections to the proposals of the National Health Service, the one that has become predominant in the medical press is that the medical profession loses its freedom in consequence of the power assumed by the Minister of Health. Though administration is to be in the hands of various committees, the final decision on everything rests with the minister. As the whole practice of medicine, domicilary and hospital, general and specialist, for both rich and poor, is socialized, its control passes to the state and is exercised by the Minister of Health. Curiously those negotiating for the profession do not seem to have appreciated this danger when they accepted medical socialism.

In the press and in Parliament a heated controversy proceeds. It is unfortunate that the practice of medicine should be dragged into the mire of party politics and become the subject of the usual exaggerations and fictions. The government and its press represent the proposed service as a wonderful achievement, a model for the whole world, overlooking entirely the serious drawbacks of bureaucratic control of such a personal thing as medical practice, as has been found in the case of New Zealand. It is said that it is a "reactionary profession" or "the old gentlemen of the British Medical Association" who are obstructing a most benificent reform. In a broadcast a former cabinet minister said that the young physicians who had been demobilized from the army and settled in the new housing districts were joining the service. He may have been told of some doctors of the kind, but the impression he gave, that there was a general movement such as he described, was unfounded. So also is the attempt to represent the opposition as a matter of senility. The plebicite taken by the British Medical Association carefully distinguished the different sections of the profession and showed an overwhelming majority of assistants, mostly young men, opposed to the proposals of the government. Another fiction propounded by the government is that the opposition of the profession is due to political dislike of the labor party. As a matter of fact, opposition has always been on professional grounds and never associated with any political party. In the correspondence columns of the *British Medical Journal* those who are avowed socialists in general politics have registered their disapproval of the act.

A representative meeting of the British Medical Association, which was attended by four hundred members, has decided unanimously not to enter the national health service unless substantial changes are made in the act of Parliament. A resolution from the council of the association embodying this decision reaffirmed the desire of the medical profession for a comprehensive health service but urged that in the public interest changes in the act were necessary to prevent physicians being turned into state servants with harmful consequences to patient and doctor alike. The resolution expressed the hope that the government would make it possible for the members of the profession to cooperate by making such changes, as it was not in the best interests of the public or of medicine for members of the profession to enter the service until such changes were made. In making the resolution the chairman, Dr. H. Guy Dain, said that the powers possessed by the Minister of Health would lead to the enslavement of the medical practitioners, who were engaged in a life and death struggle for their freedom and independence. But physicians were willing to listen to constructive proposals for the working of the service should the minister make them. In the discussion Lord Horder referred to the mendacious statements in the House of Commons and sections of the press, which caused doubt in the public mind whether the British Medical Association was a constitutionally democratic body and represented the medical profession. "If the public considered the situation it would realize the unscrupulousness of a minister who, having as a result of two short sessions failed to get what he wanted, should say that the representatives of the association were a small body who had consistently misled the great profession to which they were supposed to belong. And he accused the association of being involved in a squalid political conspiracy."

Dr. J. A. Brown, Birmingham, raised the question of "what looked like organized political and trade union pressure on doctors to join the service." He read letters written to physicians from labor organizations asking them whether they were prepared to join the service. This was a scandalous attempt at intimidation. A resolution was carried condemning as grossly improper political pressure on individual doctors to inform outside bodies of their intentions in relation to the new service.

Rupture Of Cervical Intervertebral Disks

The production of neurologic symptoms by rupture of intervertebral disks is a comparatively recent discovery, and cases in which the cervical region is involved are the last to receive attention. At the neurologic section of the Royal Society of Medicine Dr. W. Russell Brain opened a discussion on this subject. The symptoms may be those of cervical root irritation or cervical cord compression, or both. The pathologic basis may be a simple osteoarthritis of the spine or a true lesion of the disk; often it is a combination of both. Of 10 surgically verified cases, most were in persons of middle age or over. Only 2 had root symptoms alone, the majority having compression of the cord.

There were four modes of onset of symptoms: acute pain in the neck and one arm; insidious or remitting aching in the same areas; gradual development of root and cord compression, or, most uncommon, a quietly progressive cord lesion alone. The main symptom of root compression was shooting or burning pain, increased by coughing and moving the neck and with periods of remission; this might radiate widely into the chest or scapular region. Any associated sensory loss was often slight and superficial. Diminution of tendon reflexes was common, but wasting was unusual. Of 8 cases with cord features, 4 exhibited a Brown-Sequard syndrome and 4 showed evidence of bilateral compression, but in every case except one the protrusion of the disk was lateral. The syndrome might be bilateral and symmetric from the onset with no clue to the side of the lesion. The pyramidal tracts were more vulnerable than the sensory fibers, though it was the anterolateral tracts that were directly exposed to pressure. Associated wasting of the intrinsic muscles of the hand, the innervation of which was two or three segments lower than the usual level of the lesion, was common. This must be due to descending edema

Council on Medical Education and Hospitals

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Forty-Fourth Annual Meeting Held in Chicago,
Feb. 8, 9 and 10, 1948

Monday Morning, 9:30

DR. HERMAN G. WEISKOTTEN, Syracuse, N.Y., Presiding

The Financial Support of Medical Education

DR. HERMAN G. WEISKOTTEN, Dean, Syracuse University College of Medicine: The Council on Medical Education and Hospitals of the American Medical Association conjointly with the Association of American Medical Colleges and the individual colleges has assumed active leadership in the development and maintenance of high standards.

Advances in medical education have been in the direction of integration of its programs with medical care programs. Medical students devote much of the final two years of undergraduate training to actual study and care of patients in hospitals and outpatient departments. This places clinical departments on an academic basis and adds enormously to the cost of medical education.

Realizing the importance of resident staffs and internships to medical education, the Council on Medical Education and Hospitals undertook over thirty years ago to survey hospitals engaged in the training of interns and to publish lists of hospitals approved for internships. The Council appointed committees to study and recommend the type and amount of preparation essential for securing expertness in each of the special fields of medicine. A program of inspection and listing of hospitals specifically approved for residencies in the various specialties was initiated by the Council, thus making its influence felt in the field of graduate as well as undergraduate medical education.

In 1933 the Council started approving specialty boards in conformance with formulated standards of administration. The Advisory Board of Medical Specialties, consisting of representatives from each of the recognized boards, was organized a year later. The Advisory Board works in close cooperation with the Council, which in turn works in close cooperation with the individual specialty boards.

Ten years ago the annual budgets of the medical schools of the United States totaled $23,000,000. These same schools have current budgets of more than $40,000,000. Today no school has a budget under $200,000, which is more than the individual budgets of twenty-six schools ten years ago. Increases in the budgets of medical schools are attributed to improved teaching methods, especially in the clinical subjects, and the placing of much of the clinical faculty on an academic basis. Although progress has been made toward practically doubling the financial support of medical schools during the past ten years, the increased support falls far short of satisfactory basic support in many of the schools. In most instances increased support has come from private funds, which are becoming less readily available, probably due to the enactment of tax legislation by federal and state governments. Future needs for financial support for medical education, medical research and medical care will exceed those of the present.

ALAN VALENTINE, Ll.D., President, University of Rochester, read a paper entitled "The Privately Endowed Medical Schools: Their Present and Future Planning." This paper appears in full in this issue of THE JOURNAL.

HOMER W. SMITH, Sc.D., Professor of Physiology, New York University College of Medicine, read a paper on "The Present status of Proposed National Science Legislation," which appears in full in this issue of THE JOURNAL.

Financial Relationships of Medical Schools and Teaching Hospitals

DR. N. W. FAXON, Director, Massachusetts General Hospital, Boston: Medical schools and hospitals can be described as symbiotic. Historically, medical schools began in ancient temples which represent hospitals. Later medical schools became separated as integral parts of universities and finally they have rejoined, thus producing the teaching hospital. Hospitals are primarily for the care of patients but they must additionally advance knowledge, train physicians, participate in research and strive to set standards and examples of practice. Both the hospital and medical school play indispensable roles in the education of physicians. In the school the physician must acquire a basic scientific body of information essential to medicine. In the hospital he contacts the patient and under guidance of clinical instructors first deals with human beings as patients. He learns to listen, question, examine and appraise. Later as an intern he acquires special technics, particularly in the branch of medical practice he is to pursue. Therefore, of a total of six to seven years, at least four years are spent in hospital training. In 1850 one year of study produced a so-called doctor. It now takes up to thirteen years. Professional competence is now acquired by slow acquisition of responsibility, which entails dealing with patients before the doctor is fully trained. As such transition is slow, it is costly and society, i.e., the public, must recognize its responsibility to medical education by cooperating and aiding the student in making this transition.

As the medical school and hospital are inextricably bound together for two common objectives, i.e., training of doctors and advancement of knowledge, and both objectives require money, we must decide who should provide the necessary funds. There are three basic types of medical school faculty and hospital staff organization, typified by the following institutions: (1) The University of Chicago Clinic is part of the School of Medicine of the university. The faculty and staff are identical. All patients are patients of the full time staff. All doctors are on straight salary. Fees obtained go to the university. Salaries are not dependent on the amount of clinical practice but come from the university. (2) University of Rochester. Strong Memorial Hospital is part of the School of Medicine and Dentistry and shares in the endowment of the school. Members of the Staff of hospital and faculty are identical. They may be full time salaried or part time unsalaried members. Full time salaried members may increase their income from private professional fees. Part time members of the staff are privileged to have private patients on private floors. All on the staff participate in the care of patients, teaching and research. All salaries come from the university. (3) Harvard. All teaching hospitals used by Harvard Medical School are separate corporations. All have some staff members who hold faculty appointments. Appointments to the staff at Massachusetts General Hospital are made by trustees of the hospital. Appointments to the faculty are made by the president and fellows of the university. Not all staff appointees hold medical school appointments. Part of the hospital staff is on a full time salaried basis; the major portion of the part time staff is unsalaried. Both full time and part time members of the hospital staff have private patients and retain professional fees. All are supposed to participate in the care of patients, teaching and research. Salaries may be all from the university, all from the hospital or part from the university and part from the hospital.

When both school and hospital are university units the source of the salaries is not important. However, when salaries of individuals come from hospital funds there must be a clear understanding as to what services the salaries are paid for, particularly if the staff personnel receiving the salaries are not also faculty personnel. There is now criticism of source and responsibility for expenditures both on the part of the hospital and the medical school because of shortage of money. The medical school criticizes the hospital for not recognizing the tangible as well as the intangible benefits of medical education and research in the hospital and of the services derived from students, residents and teachers; the hospital criticizes the medical school for not paying its way, including the necessary additional costs to the hospital for instruction of the students. Using the Massachusetts General Hospital as an example, it is found that the teaching of undergraduate Harvard medical students at the hospital costs $160,000 of school funds plus an unknown portion of $105,000 of hospital funds plus a small additional outlay for laboratories, teaching rooms and amphitheaters. The interests of the school end with the completion of four years, at which point the interest and responsibility of the hospital increase. Salaries are paid for teaching and research; the salaries vary down to a nominal payment of $100. No one is overpaid. The major portion of money paid by the hospital in salaries is for teaching of the resident staff, executive duties and time spent in research. When a single person occupying positions on both faculty and staff receives salary from both university and hospital, such money is paid for undergraduate teaching of medical students and graduate teaching of interns and residents. In this way economy of manpower is obtained, and both the school and hospital profit by division of salary. In supporting a resident staff the Massachusetts General Hospital does two things: it provides for the best care of patients and provides the final stage in the education of physicians. The costs are high. The total cost for sixty-seven residents is approximately $175,000 a year. For this the hospital gets constant and excellent care of patients, and full time and part time members of the staff are relieved of many duties and thus are allowed further time for research. In the past the total amount has been charged to operating expense of the hospital. The question is raised whether part of this total amount should be carried on a separate budget as a charge toward education. That question still remains unanswered.

DISCUSSION

JOSEPH HINSEY, Ph.D., Dean, Cornell University Medical College, New York: Many additional medical schools should be the recipients of governmental grants. However, grants as now given are for specific purposes and cannot be directed to meeting costs of medical instruction or administration. Such grants oftentimes increase rather than decrease administrative budgets.

Regarding Dr. Faxon's paper it can be said that in general medical schools pay their faculty to teach undergraduate medical schools and to conduct research. Likewise, hospitals pay primarily for the teaching of graduates and for research and executive direction of their services. It is most difficult to set up any standard formula that will allocate costs, as men from clinical staffs do preclinical instruction and the reverse also occurs. I do not agree that the interest of the school ends with the completion of four years of medical school, as medical schools are much involved in training beyond that time, as evidenced recently by demands for help in the training of veteran physicians. The financial difficulties of teaching hospitals is a matter of great concern, inasmuch as maintaining these hospital services on a high plane is required for maintenance of high standards in undergraduate and graduate training.

One is impressed with quantitative needs expressed with regard to present and future needs of medical education in its broadest aspects. Various estimates have been given. As President Alan Valentine pointed out, most if not all of the privately endowed institutions do not have the funds to do the present job, let alone develop along lines that seem required in the future. There is still great need for the information that a survey of medical education can provide. Medical education has never had enough money to support it adequately. Present difficulties are exaggerated by recent inflationary trends. Not all educators regard government subsidy as the proper solution, as such support has great potential danger to higher education. So far support has been received from governmental sources for research in the fields of cancer and psychiatry on terms that many believe to be satisfactory. However, if a satisfactory formula cannot be developed for freedom of action with such support, our medical schools had better stay poor. President Valentine has stated that " the primary and long term objective of private medical schools should be to secure private funds as promptly and as largely as possible. We must act with private enterprise on private enterprise." The public should be fully informed of our problem. It is noted that when governmental funds become increasingly available private foundations turn to other fields. This might occur in medical education.

Motion Pictures in Medical Education

MR. RALPH P. CREER, American Medical Association, Chicago: The use of visual aids in mass teaching received its greatest impetus during World War II. The Bureau of Naval Personnel in " Why Use Training Aids?" showed that students learn 35 per cent more in a given time, remember facts 55 per cent longer and therefore meet high standards in less time. Visual aids were coordinated with teaching programs. During 1946-1947 approximately 55 per cent of the entire medical school population were former service men who had experience with visual aid programs in the armed forces. A survey by the American Medical Association in 1946 showed that forty-four of the schools that responded owned motion picture equipment or had it available to them. The number of projectors was not adequate for all departments. Four schools had silent projectors only. Few schools had access to slide film projectors. Most films were borrowed from commercial or pharmaceutic companies. Replies indicated that the six subjects in which films were most needed were surgery, physiology, pharmacology, anatomy, medicine and pathology. Many schools needed basic films rather than pictures on technic. Northwestern University Medical School reported use of more than five hundred and fifty medical films in one year due to an efficiently established department of medical visual education. It is suggested that in lieu of such a department the medical librarian be responsible for source material on all types of visual aids in medical schools.

A department of visual education has been recently organized in the University of Colorado School of Medicine. Pioneer work in visual education has been carried out in the department of anatomy at Duke University School of Medicine. Student reaction to this type of teaching is highly favorable.

The American Medical Association's Committee on Medical Motion Pictures for promotion and and more widespread use of films offers the following to the medical profession:

1. FILM LIBRARY.--The film library contains one hundred seventy-four copies of forty-six subjects, including basic type films and films for the postgraduate level. Additional films will be purchased in 1948. The only charge for borrowing films is for transportation services. Lists of films are now available on request.

2. SOURCE FILE.--A comprehensive source file of medical films is being compiled, which will be indexed and cross indexed and kept current. Medical school faculty members may apply for information on specific subjects. It is not possible yet to furnish long detailed lists of films on general subjects.

3. SOURCE LIST.--A source list of fifty-eight institutions distributing professional films has been prepared and is available on request.

4. REVIEWS.--Reviews of new films, which are published in THE JOURNAL, include a brief description of the content of the film and recommendation of audience level. Each film is screened by a specialist.

5. CLEARING HOUSE OF INFORMATION.--The committee is also undertaking to serve as a clearing house of all information on medical films for inquiries from both the United States and foreign countries. The committee is now in a position to advise as to the type of films needed by medical schools, medical societies and hospitals.

DISCUSSION

DR, WALTER BLOEDORN, Dean, George Washington University School of Medicine, Washington, D.C.: Audiovisual aids have a place in medical education. However, much depends on their content, quality and ability to become " curriculum integrated." These aids include not only motion pictures but stills, slides, projectors, animated drawings and models.

The Association of American Medical Colleges has through its Committee on Audio-Visual Aids recommended the establishment of a Medical Film Institute to serve as a coordinating agency to carry on this work. This committee has met with the interdepartmental committee composed of representatives of War and Navy Departments, Veterans Administration and United States Public Health Service. The interdepartmental committee will place at the disposal of the Association of American Medical Colleges, who in turn will provide the personnel required to establish and maintain it, a medical film institute.

Audiovisual aids will find their true level in medical education. A new teaching method is sustained not by the enthusiasm of its supporters but only by its true worth, which time alone can assay. These aids should improve medical teaching by (1) transmitting concepts of dynamic phenomena with greater clarity; (2) broadening the experience of the students by increased opportunities for presenting both specialized and diversified laboratory and clinical material; (3) shortening the time required to introduce and demonstrate essentially new and practical technics; (4) permitting more imaginative instructional activity as they provide instructors with a better opportunity to study and profit from the teaching method of others, (5) facilitating the rapid dissemination of information to others, and (6) lessening disparities of training which may exist among institutions with widely varying resources.

Monday Afternoon, 2 o'clock

DR. HERMAN G. WEISKOTTEN, Syracuse, N. Y., Presiding

Teaching the Clinic Aspects of Atomic Energy

DR. ANDREW H. DOWDY, Professor of Radiology, and DR. STAFFORD L. WARREN, Dean, University of California School of Medicine, Los Angeles: In teaching the clinical aspects of atomic energy the objectives are: (1) to train medical students in the biophysical approach to medical problems; (2) to develop a trained reserve pool of medical graduates available in the event of national emergency and to advise and conduct programs pertaining to radioactive contamination of air, water, soil and horticultural products; (3) to participate in graduate training in the fields of radiology, biophysics, radiation chemistry and biology, and (4) to train personnel from the armed services.

A grave responsibility has been added to medical schools; it involves both a moral and patriotic obligation toward the security of the nation. There is hardly a citizen who does not have a vital interest in the proper use or misuse of atomic power. The medical graduate must have a general conception of atomic energy and of its products, nuclear physics, radioactivity, radiation pathology, radiation toxicity and radiobiology. A continued search must be made for an understanding of the action of ionizing radiations on biologic tissues and systems. Efforts must be directed toward effective therapeutic measures which may be employed in the event of exposure. Alterations in present curriculum are therefore necessary. Many curricular difficulties beset the academic future of the clinical aspects of atomic energy. As inadequate salaries are not conducive to the highest scholarship in the field of pedagogy, young talent refuses to choose this profession. This danger threatens not only the elementary schools but colleges and universities. Should this situation continue, professional schools will have entrance classes which are intellectually emasculated. The medical student already has practically reached the saturation point in both the number of subjects and duration of training. He is overwhelmed with numerous clinical and preclinical subjects. Increased length of the training period needed for specialization has resulted in exploitation both by the profession and by hospitals, where interns toil 24 hours a day with no time for the additional training which is being suggested. In spite of that, each medical graduate should possess a minimal knowledge in this new field.

Teaching the clinical aspects of atomic power falls into three categories: (1) premedical, (2) medical and (3) graduate. Premedically, basic training in physics, chemistry, biology and nuclear physics seems imperative from a cultural standpoint alone. In medical school the student must acquire pertinent information on radioactivity, radioactive isotopes, heavy isotopes, radiation biology, radiation toxicity, radiation pathology, radiation detection, ion meters, Geiger counters and the symptomatology and therapeutics of the toxic materials used in making materials employed in atomic piles. A one hour course for one semester during the first year, covering the basic information in nuclear physics and other subjects, seems essential prior to more detailed instruction in the various departments of the medical school. Men from the faculty or trained guest lecturers such as those from the Atomic Energy Commission, U.S. Public Health Service, the armed services, and the Bureau of Standards could supply the needed teaching talent.

Graduate training for the medical student will place the heaviest burden on the young physician who desires special training in radiology or medical biophysics. For those who wish to acquire extra proficiency in this field it seems likely that an extra year of study will be required in addition to the medical or surgical internship and three years' residency in radiology. This additional year of study should follow the completion of and not precede the general radiologic training. Some adjustments in the curriculums of medical schools are necessary if the members of the profession are to meet the challenge of the new era.

DISCUSSION

GEN. GEORGE E. ARMSTRONG, Deputy Surgeon General, United States Army: I feel a sense of responsibility in stimulating as much as possible general interest in any program destined to acquaint physicians with current knowledge of this subject. With few changes in the curriculum and by utilizing appropriate members of the faculty, any medical school can give students the basic instruction necessary to an understanding of nuclear energy. In the latter part of the senior year I recommend perhaps a two day seminar, during which the related basic sciences can be reviewed, interrelated and focused in such a manner as to emphasize the clinical aspects, the attendant hazards and the therapeusis of nuclear casualties.

Medical schools should also take the lead in organizing intensive courses designed to give graduate physicians a minimal knowledge of this subject. Such courses can be condensed into a few days and will alleviate the worry which pervades the profession. I am reliably informed that what every physician should know on "C" Day can be mimeographed on one sheet of paper. But, by the same token, every physician should know the "whys and wherefores" behind these few simple directives.

I ask your assistance in "selling" two concepts to the profession—concepts which are contrary to all previous teachings, yet which are vital to the proper handling of casualties in the event of an atomic catastrophe. The first is that medical personnel must not rush in with the idea of rendering immediate aid to the stricken victims. We must wait until trained technicians consider it safe to enter the radio-contaminated area. The second has to do with the economy of therapeutic means—particularly with the supply of blood. If we are called on to deal with thousands of atomic casualties, about one third of them will in a few hours present symptoms indicative of the gravest prognoses. Blood transfusions and other known therapeutic means will be of no avail. The profession must steel itself to make those persons comfortable and to concentrate every effort to save those who have some chance of survival.

The Teaching of Rehabilitation and Physical Medicine

DR. HOWARD A. RUSK, Professor of Rehabilitation and Physical Medicine, New York University College of Medicine, New York: Although attention has been centered on the disabled veteran as evidence of extensive disability in our population, disability among the civilain population is far greater. Nineteen thousand amputations occurred among military personnel during World War II against 120,000 major amputations among the civilian population. Fifteen hundred men were blinded in military service, but 60,000 civilians lost their sight during this period. Two hundred and sixty-five thousand men were permanently disabled in the war, but 1,250,000 civilians were permanently disabled by diseases and accidents in the corresponding four years. Twenty-three million persons in the United States are handicapped to some extent by disease, accidents and maladjustment, or war.

Rehabilitation pays economic dividends. In one hospital of the Veterans Administration medical rehabilitation service was given 130 chronic neurologic patients, many of whom had not been out of bed in ten years. After nine months all but 10 of the group manifested some worth while permanent improvement. All but a small percentage were made employable and capable of self care. Rehabilitation of this one group was considered to have saved the government over $1,250,000. The Federal Office of Vocational Rehabilitation in 1944, working with 43,997 persons, increased the average yearly wage after rehabilitation to $1,768 per person from a previous average of $148. Many of these persons had been on public assistance at a cost of $300 to $500 annually. The cost of rehabilitation averaged $293 per patient as a single rather than an annually recurring expenditure. Medical rehabilitation takes the patient from the bed to the job and is the dynamic therapeutics of chronic disease. Although it is dependent on the skills of medical specialists, principles of rehabilitation are basic to the practice of medicine. One of its greatest problems is motivation, to encourage and convince the disabled persons that they can rehabilitate themselves. Such motivation can start at the time of the accident or the onset of the crippling disease by allaying fears of the patients and giving courage, understanding and hope predicated on an accurate knowledge of what can be done. It must be recognized that treatment of disease is only part of medical care and that equal emphasis must be given to treatment of the patient as an individual. Integrated programs of convalescent care that stress activity as an adjunct to definitive treatment can reduce the period of hospitalization, offset the deconditioning phenomena of rest in bed and prevent the harmful physiologic and psychologic sequelae which often result through extended hospitalization. Although it seems logical that medical rehabilitation should be an important service of every civilian hospital, there has been little attempt until recently to establish such programs. Rehabilitation in varying degrees is available in some tuberculosis, mental and other specialized hospitals, but little provision has been made for such dynamic care for the more than 14,000,000 persons who are patients in general hospitals each year. The first comprehensive program of this sort in any community hospital in this country has been recently inaugurated at Bellevue Hospital in New York. The service has bed capacity for eighty patients and also operates in much the same manner as the x-ray and laboratory departments as a service for other departments in the hospital. It treats both inpatients and and outpatients on reference from the other services of the hospital. This is the first step in a plan by the Department of Hospitals in the City of New York to provide all patients in municipal hospitals with medical rehabilitation services.

The Department of Rehabilitation and Physical Medicine at New York University College of Medicine is organized as a major department. Activities include training, research and patient care using the services both at the college and at Bellevue Hospital. Undergraduate training consists of a one hour indoctrination lecture in the first year, four hours of lecture demonstration in the second year and six hours of lecture demonstration correlated with the basic sciences of anatomy, physiology and pathology in the third year. Additionally, twenty-two hours of elective classes, lectures, demonstrations and field trips are offered. Clinical clerkships of three months in the third year and two months in the fourth year consist of orientation to the uses of physical modalities in the evaluation of treatment of physical, psychosocial and vocational rehabilitation and therapy. A twelve or twenty-four week course is offered in the postgraduate division, consisting of theoretic and practical training in these same phases. Additionally, part time postgraduate courses can be had through special arrangement. Teaching hospital rounds in which guest specialists have participated regularly have attracted numerous visiting physicians to this important and heretofore relatively neglected phase of good medical care.

DISCUSSION

DR. A. C. IVY, Vice President, Chicago Professional Colleges, University of Illinois, Chicago: As a result of World War I and the work of a number of physicians, particularly in this country and England, physical medicine has achieved a position where it merits definite recognition in the medical curriculum and in therapy. How is it best to present this subject? I have had occasion to study this question in cooperation with Dr. Coulter, of the Department of Physical Medicine at Northwestern University, during a period of years. Obviously we cannot expect our medical students to make physiatrists and experts in rehabilitation at the end of the four year course. However, we can demonstrate to them that physical medicine, including rehabilitation, has a definite scientific basis and what physical medicine and rehabilitation have to offer. In physiology courses at Northwestern, in order to show that physical medicine and rehabilitation have a scientific emphasis, we asked the Department of Physical Medicine to take six hours of our regular laboratory work and two hours of our clinic in applied physiology. In the laboratory they demonstrated the apparatus they use and the physical and chemical principles on which it operates. In the applied clinic in physiology they demonstrated what physical medicine has to offer as far as the applied physiology of muscle disturbances and the applied aspects of neurophysiology, gait and posture are concerned.

At best, the subjects of skeletal muscle and neurophysiology, gait and posture are dry subjects and are disliked by about 80 per cent of the students in any class in physiology. These subjects, however, can be made dynamic and realistic by demonstrating to the students how the basic knowledge of muscle and neurophysiology, gait and posture can be applied to the patient suffering from disease.

These facts should be further emphasized, in my opinion, in the latter part of the junior or during the senior year by setting aside a minimum of eleven or a maximum of twenty-two hours to again demonstrate to the students what can be done by rehabilitation procedures. There are clinical men on the staffs of our university hospitals today who do not know what physical medicine, and particularly rehabilitation, has to offer to many patients who represent that group considered forever unable to earn a living. I have seen in the last six months some 4 patients who were on custodial care returned to a status in which they could earn their own living.

Rehabilitation is something that we are going to have to provide whether we like it or not, because we must realize that the number of disabled persons in this country has been increasing over the years, has been further increased by World War II and will be still further increased by the victims of anticipated automobile accidents. By impressing the members of the medical profession that many of these disabled persons can be rehabilitated so that they can make their own living, we shall be enlarging the humanitarian services of medicine and decreasing the economic burden of the taxpayers.

Preparing the Medical Student for Family Practice

DR. WINGATE M. JOHNSON, Professor of Clinical Medicine, Bowman Gray School of Medicine, Winston-Salem, N.C.: The alarming trend toward specialization in the last few years was given emphasis by the premium placed on specialists in the recent war. Among responsible factors are specialty boards, the tendency of many hospitals to close their doors to noncertified men, pseudoprosperity experienced during and after the war, growing popularity of group practice and, finally, current trends in modern medical education. No more than 18 per cent of the medical population need be specialists. At least two thirds of graduates should plan for general practice. However, in one school 96 per cent of a recent graduating class planned to become specialists. This trend seriously threatens the future of the medical welfare in this country. It must be remembered that during the last depression many physicians were operating taxicabs and elevators. None of these were family physicians. Patients are now complaining that they cannot find doctors who will come to their homes when necessary. Unless public demand is met, politicians who promise free medical care for all will find ready followers and physicians will find themselves ordered to practice when, where and how the government directs.

Recognition of the vital need must bring about a renaissance of the family doctor. The Council on Medical Education and Hospitals has encouraged formation of general practice sections in hospital staffs and has discouraged hospitals from closing their doors to physicians not certified by boards. The General Practitioner's Award, the "Grass Roots Conference" and many other activities of the officials of the American Medical Association have stimulated interest in this renaissance. Medical schools can play an important and encouraging part in preparing students to enter general practice. A poll of the graduating class of the Bowman Gray School of Medicine in December 1947 revealed that only eight (one sixth) of its members expected to specialize, another one sixth were undecided and the remaining two thirds expected to be family physicians. Therefore, the renaissance of the family physician is under way.

Of certain factors which have helped attract these students to family practice, the most important is the actual teaching program. Emphasis is placed on consideration of the whole man. In the belief that "responsibility teaches" the student is given early responsibility for care of patients under supervision. In the fourth year the class is divided into three sections; medicine, surgery and specialties. Since almost every senior after the first year or two has elected private medicine, service cases have been left to third year students and medical house staff. Most students respond so well to responsibility that the patients frequently consider the students as their doctors. Physicians in attendance make it a point to have students present when they talk to the family, especially during the summing up of the case. In short, every effort is made to have the student learn the art as well as the science of medicine. A special course in family practice of one hour a week is attended by both junior and senior students. This class combines the old didactic lecture and the modern bedside clinic. This course is made as informal as possible. Students are encouraged to interrupt with questions at any time and to challenge statement or diagnosis; no infallibility is thrown about the teacher nor effort made to bluff the student. Cases selected for presentation are typical of those seen in general practice. Some cases are purely functional, some organic, some mixed, and the student handling the cases is made to dig in the history of the patient until the mental focus in cases of psychoneurosis is found by tactful questioning. Occasionally, for the good of his soul and the benefit of the student, the teacher presents one of his own mistakes in diagnosis or therapy. All through the course an effort is made to emphasize the importance of the history and the physical examination. A preceptorship system has been inaugurated wherein, due to the fact that classes are graduated in December while most hospital appointments begin in July, a large number of graduates accept a preceptorship under a family physician. Since they have the rights and privileges that go with licensure, they become real assets to the preceptors. This practice encourages young men to become family physicians themselves.

Preparing the Intern for General Practice

DR. MYRON McDONALD WEAVER, Assistant Dean, University of Minnesota Medical School, Minneapolis: The majority of recent medical graduates hesitate to enter practice without special training because they do not feel they are qualified to do so after a one year internship. Their feeling of inadequacy arises from the impossibility of mastering the required medical knowledge in five years. Two years ago Dr. William A. O'Brien recommended that (1) there be a redistribution of emphasis in the curriculum of the four year medical course, with relatively more attention to internal medicine, medical specialties, obstetrics and pediatrics, due regard for medical aspects of surgical specialties, and that technical aspects of surgery be left for the graduate years. (2) Recent medical graduates should be able to avail themselves of an internship that offers special training for general practice beginning with a full year in medicine and the medical specialties followed by a second year in obstetrics, pediatrics and some aspects of surgery. A number of such internships are administered by the University of Minnesota Medical School. Students expressed interest in the type of internship under consideration. In 1947 a reaction in favor of general practice was noted among upper classmen of the medical school. The high tide of interest in specialization was reached in the late war, and since then a reaction toward general practice warrants special arrangements for intern training specifically designed to meet this need. A preceptorship program to introduce graduating seniors to general practice was entered into by nine of the seventy-two members of the class graduated in August 1947. These were arranged in cooperation with the Minnesota State Medical Association. Graduates went to preceptors serving in relatively small communities scattered throughout Minnesota. Most preceptorships are for a term of nine months preceding regular internships. Both preceptors and former students were gratified by the arrangement. Hospital facilities for the type of internship discussed were arranged in the university hospitals and in Minneapolis General Hospital. Although difficulties were met in arranging this type of internship, problems in most instances were met and solved. Characteristics of hospitals entering the program were (*a*) good staff representation from the faculty of the medical school, (*b*) good staff representation by leading general physicians in the area as well as diplomates of specialty boards, (*c*) provision for residency training approved by the Council on Medical Education and Hospitals and (*d*) notable interest of the staff toward participation in intern training.

There are advantages in this type of training from the point of view of the intern: (1) two full years of good hospital experience: (2) responsibilities which are seldom accorded rotating interns; (3) experience with types of patients and stages of disease which are encountered in both public and private hospitals; (4) valuable types of experience with hospital administration, and (5) opportunity to return to the medical school for regular medical-surgical-pathologic conferences and other exercises.

Certain administrative problems for participating hospitals were discussed, including a guaranty that service will be continued, noninterference with current routine internships and variability of stipends. Administratively, the medical school must select the interns to be appointed for the two year service. Arrangements must be made to accredit the second year of internship toward certification with a specialty board. Arrangements must be made for recognition of the internship by the medical school and by medical licensure boards of the various states. Rather than have hospitals issue separate internship certificates the medical school must issue a certificate that covers the full period of training. The greatest problems were posed by students who requested substitution of one service for another which was originally called for on the schedule. This program of two year internships for general practice is considered to be still in the experimental stage, and results will be appraised later when its value to the future general practitioner may be determined. In general, the opinion of all concerned in Minnesota was that two years of some type of hospital training other than that usually afforded by the rotating internship is required to fit the recent graduate in medicine for general practice.

DISCUSSION ON PAPERS BY DRS. JOHNSON AND WEAVER.

DR. KARL MEYER, Medical Superintendent, Cook County Institutions, and Chairman, Committee on General Practice, Chicago: Unless medical schools and hospitals begin at once to train sizable groups of graduates each year for family practice, some other agency will force this issue to the embarrassment of organized medicine. An internship that will develop good family physicians must be long enough to give good working knowledge of all the specialties. This is favored by a two year rotating internship, which will permit men to carry out the minor services in these specialties and at the same time help them decide where and when the service of a specialist is needed. Family practice need not become just a clearing house for patients, as the majority of ills can be handled by a graduate of an approved medical school who has had a good rotating internship of preferably not less than eighteen months. It was noted that the greatest deficiency in medical teaching lies in the department of therapeutics. Courses in prescription writing based on Useful Drugs would be most important. Because of this lack of knowledge among new graduates there is a large amount of useless and sometimes harmful medication prescribed. Such training should be emphasized during the internship. As the general practitioner is on the front line of medical practice, he should constantly have available to him short courses relating to the newer developments in medicine. Likewise, inasmuch as study of the basic sciences still constitutes the basis for modern medicine, the general practitioner should have opportunity for refresher courses to bring him a fuller view of what medicine can accomplish and where efforts can be directed to improve the general health of the community. Finally, attendance at necropsy and pathologic conferences is necessary, as only a physician who has never followed his patients to the necropsy table can remain smug in his appraisal of his own diagnostic ability.

DR. WARD DARLEY, Dean, University of Colorado School of Medicine, Denver: I think we must recognize that specialization has been a necessary and beneficial development and that it is here to stay; but it is hard to visualize a comprehensive and satisfying type of medical care that will be dependent entirely on specialists or groups of specialists. It is essential that someone in the medical family be prepared to fill the gap between the patient as a person and his occasional needs for a specialist. Some say this individual should be the general practitioner and some say he should be the internist. Be this as it may, our scheme for medical care has a place for a person who is fundamentally trained as a physician and all that name implies. The answer lies in the fundamental training of this basic physician. First, the problem should be approached from the standpoint of the selection of medical students. Here the important question of motivation comes up for assessment, and unfortunately at present this is most difficult. I wish that motivation could be estimated as easily as aptitude and scholastic ability.

After the medical student is selected, before he is oriented to pathology, he should be oriented to the health person, to medicine as human biology. He should be trained to be critical. A research attitude should dominate his methods and thinking. Every effort should be made to challenge the student's interest in personal as well as in community preventive medicine. He should approach medicine with the idea of being a health counsellor or a health coordinator from birth to death. He should certainly be well oriented in the field of psychosomatic medicine and in the sciences that are basic in clinical psychiatry, psychobiology and psychopathology.

Orientation of the medical student to human disease or to human biology as medicine should be grafted on the appreciation of normal human development and on good health and and its preservation. This clinical training should put considerable emphasis on diagnosis so that limitations can be recognized accurately and so that referral to the specialist can be approached intelligently.

Dr. Lester Evans' concept of physician training is well expressed about as follows: The training and educational experience of every physician should emphasize the concept of continued medical care of the individual, and this means that the physician's primary interest should center around the care of the ambulant patient. The patient should get away from the idea that the hospital is the center of medical practice. He should believe that the care of the ambulant patient is the important aspect and that hospitalization is something incidental to this care.

The medical cults and quacks have always profited by adherence to this concept of continuing care of the ambulant patient, and it is largely because of this that they manage to hold the interest and support of a large segment of the population.

We have tried to approach the problem at all levels: premedical, undergraduate, intern, graduate and postgraduate. We are still interested in training specialists, but we are also interested in offering a graduate training program for the general practitioner, the family physician, the general physician - call him what you may.

National Emergency Medical Service

DR. HAROLD DIEHL, Dean, University of Minnesota, Minneapolis: As a member of the Council on National Emergency Medical Service I will say a few words concerning its organization and its relation to medical education. After World War II the House of Delegates of the American Medical Association established a Committee on National Emergency Medical Service to review the experiences on the use of medical personnel and the medical resources of the nation during that war. That committee worked for several years making a study and analysis of the use of medical personnel by the armed forces. The committee made its final report to the House of Delegates of the American Medical Association at its meeting in Atlantic City, N. J., last spring.

The final recommendation of the Committee of National Emergency Medical Service was that the American Medical Association create a standing committee of the Board of Trustees to be known as the Council on National Emergency Medical Service. The function of this council is to continuously study and make plans for the provision of medical services in case of a national emergency and to bring the thinking and the planning of the physicians of this country to the attention of the officials of our government in Washington, D.C., and our representatives in Congress. The Council was appointed during the summer of 1947

This council has been organized and has made contact with the Secretary of Defense and other agencies in Washington that are concerned with planning for national defense. On every hand it has been given the best possible assurances of cooperation. We all hope that such a national emergency will not arise, but with the possibilities of atomic and bacteriologic warfare we are convinced that if it should arise, the medical resources and medical personnel of our nation must be used with the greatest possible effectiveness if our nation is to survive. The council requests suggestions of any members of the profession in making these plans.

THE FEDERATION OF STATE MEDICAL BOARDS

DR. MORRIS FISHBEIN, Chicago, read a paper on "Medical Education in Latin America," which appears in full in this issue of THE JOURNAL

Tuesday Morning, 9:30

Educational Indigestion

DR. R. N. WHITFIELD, Assistant Secretary, Mississippi State Board of Health, Jackson: Too many young men and women are not properly trained before they enter medical schools. The first grade through high school are noted as the critical years of education, during which habits of study are acquired. In spite of the high cost of education in the United States to the individual family, a large proportion of boys and girls still cannot spell, read or write and cannot use the English language correctly; they cannot speak coherently in public gatherings and are ignorant of many items of common knowledge.

Prospective physicians are not being thoroughly taught the basic elements of education. They are hurried through a curriculum far too advanced for elementary and high school courses. Many subjects now taught in high school could be dropped and later taught in college. Many high school textbooks contain over a thousand pages where three hundred would suffice. Many textbooks used in the first twelve grades fail to use language which may be coupled to the knowledge of the elementary student. A break in continuous schooling from first grade to medical specialist or Ph.D degree is advised. A person who spends nearly twenty-five years continuously in school is not altogether practical and probably is out of harmony with the world in which he must live.

We will go further and succeed better if common sense business ideas rather than too much theory prevail in our educational system. Time should be spend on training in fundamentals, and scientific subjects such as chemistry and biology can best be taught in college, the resultant free time being used to perfect the knowledge of fundamental subjects.

An Analysis of Basic Science Laws

DR. WALTER L. BIERRING, Secretary, Federation of State Medical Boards of the United States, Des Moines, Iowa: Basic science requirements underlying the practice of the healing arts have been established in seventeen states, the District of Columbia and the Territory of Alaska.

The basic science subjects in which examination are conducted are specified by statute. The examining boards are not authorized to add any subjects or to refrain from giving an examination in any subject specified by law. All nineteen boards examine in anatomy, physiology and pathology; seventeen of them examine in chemistry; fifteen in bacteriology; nine in hygiene; one in public health, and two (Wisconsin and Connecticut) in diagnosis. The two original boards continue to include diagnosis as one of the basic sciences; the recognition of pathologic conditions is evidently considered a basic requirement for medical practice.

Three boards - Wisconsin, Connecticut and Rhode Island - have three members each. Thirteen boards - Alaska, Arizona, Arkansas, Colorado, District of Columbia, Florida, Michigan, Minnesota, Nebraska, New Mexico, South Dakota, Tennessee and Washington - have five members; boards of Iowa and Oregon have six members and the Oklahoma board has seven. The terms of service vary between three, four, five and six years. The basic science boards of Colorado, Minnesota, New Mexico, Oklahoma and South Dakota comprise one representative from each of the three healing arts, and on the Alaska board there are two doctors of medicine, one doctor of osteopathy and one chiropractor, as well as one layman.

On nine boards-Arizona, Connecticut, Florida, Iowa, Michigan, Nebraska, Oregon, Washington and Wisconsin- there is no M.D., D.O. or D.C. represented in the membership. In Arkansas and Rhode Island the physician member is a professor of pathology, and in Tennessee a professor of bacteriology. A veterinarian is a member of the Colorado and Florida boards; a doctor of dental surgery and a dean of the School of Public Health are members of the Michigan board; and the dean of the State University School of Medicine is secretary of the Tennessee board. Lay members are represented on the Alaska, Connecticut and Rhode Island boards. A teacher of bacteriology in a college or university is a member on five boards, and a teacher of pathology is a member on eight boards. A professor of physical hygiene is a member of the Washington board.

The requirements for admission to the basic science examinations are more or less uniform. The age requirement is 21 years, with two exceptions; in Nebraska it is 17 years and in Oklahoma, 19. Citizenship is required in Alaska, Florida, Oklahoma, Rhode Island, South Dakota and Tennessee.

Graduation from an approved high school or its equivalent is required by all existing basic science laws except those of Rhode Island and the District of Columbia. The Rhode Island Basic Science Law enacted in 1940 has the additional requirement of one year of preprofessional collegiate education in an accredited college and two years of professional training in the basic sciences.

In twelve states the grade required for passing each individual subject is 75 per cent. In four states — Iowa, Oklahoma, Oregon and Washington — and the District of Columbia the grade required for passing is 70 per cent and the general average, 75 per cent. Connecticut requires only 60 per cent for passing individual subjects and 65 per cent for the general average. In 1944 there were 2763 applicants examined by eighteen basic science boards with an average of 22.4 per cent of failure. The percentage of failure for physicians and medical students of 18.2, 16.4 and 18.7, respectively, for three years seems high. The comparative results in some states seem to indicate that the sifting process of the basic science board examination eliminated the less adequately prepared medical graduates and definitely reduced the number of failures in the licensure examination. The basic science laws of Washington and Florida do not permit reciprocity with any outside examining board. The remaining seventeen boards enter into some form of reciprocity with each other. Michigan and Minnesota apparently do not enter into reciprocity with a basic science board where the required passing grade for each subject is below 75 per cent. Eight basic science boards accept the grades in the basic sciences obtained in a state licensure examination. In seven other states the law authorizes such a waiver but for various reasons it is not exercised. The certificate of the National Board of Medical Examiners is accepted by nine basic science boards; Alaska, Arkansas, Connecticut, Iowa, Minnesota, Nebraska, Oklahoma, Tennessee and the District of Columbia. The Washington State Board of Medical Examiners accepts the national board certificate, while the basic science board of the State does not. In Arizona, Arkansas, Colorado, Connecticut, Iowa, Nebraska, New Mexico, Oregon, South Dakota and Wisconsin credit is not allowed by the state board of medical examiners for grades received in the examination of the basic science board, the basic sciences being included as separate subjects in the licensure examination. The nineteen existing basic science laws have evidently been enacted by legislative action without regard to any national pattern or uniformity in procedure of operation. The great difference in the type and character of the previous educational training of the personnel comprising the membership of the basic science boards will always make it difficult to harmonize the examination procedure, particularly as a prerequisite for license to practice one of the healing arts. As previously stated, the character of the examination questions in the different basic sciences has undergone remarkable changes, assuming more and more the type adaptable for a licensure examination, especially that of the practice of medicine. The evident original purpose of enacting basic science laws as a prerequisite for licensure in the healing arts was to exclude chiropractors, and other inadequately trained practitioners from being admitted to licensure. The number of chiropractors appearing before basic science boards is decreasing each year. In 1946 only forty known chiropractors were examined. The training of osteopaths in the basic sciences is gradually improving, yet the percentage of failures before basic science boards is still about 40 per cent. In 1946, one hundred and ninety-six osteopaths were examined by basic science boards.

Under the sponsorship of the Council on Medical Education and Hospitals of the American Medical Association, the Association of Americal Medical Colleges and other professional educational agencies, medical education in America has been established on a uniform university basis. It is within the power and opportunity of the existing boards of examiners in the basic sciences to profoundly influence and advance the standards of medical education and licensure in this country, if they choose to do so.

DR. IRVING S. WRIGHT, Associate Professor of Clinical Medicine, Cornell University Medical College, read a paper on "Medical Education in New York, Germany and Austria," which appears in full in this issue of THE JOURNAL.

DR. JACOB L. LOCHNER JR., Secretary, Albany, New York, State Board of Medical Examiners, read a paper entitled "Licensure Evaluation of European Medical Graduates," which appears in full in this issue of THE JOURNAL.

Recent Legislation Affecting Medical Licensure

DR. J. W. HOLLOWAY Jr., Bureau of Legal Medicine, American Medical Association, Chicago: There have been three recent court decisions affecting licensure.

1. *Davis et al. v. Beeler, Attorney General et al.* decided by the Supreme Court of Tennessee Nov. 29, 1947.—An indictment was returned against members of the board of naturopathic examiners and others charging conspiracy to violate the laws of the state in that the defendants combined to effect the licensure of unqualified persons. Twenty-seven defendants were indicted, eighteen entered pleas of nolo contendere, and fines were imposed ranging from $100 to $1,000. Prior to imposition of fines the legislature had repealed the naturopathic act and forbidden previous licencees from practice. Fines only were considered justified because the state was not put to the expense of trial.

A subsequent proceeding in equity instituted by a number of naturopaths to declare invalid the legislative action was denied on Nov. 29, 1947 by the Supreme Court of Tennessee, which sustained in its entirety the legislative action. Evidence was that the legislature thought there was too much "border lining" in the practice of naturopathy and was determined to stamp out the evil which was practiced to the definite injury of credulous sufferers.

2. *Board of Medical Registration and Examination of Indiana v. Peter S. Kaadt.*—Kaadt's license was revoked by the board following a charge of gross immorality in connection with his practice. Kaadt, operating the Kaadt Diabetic Institute and holding himself out to be a specialist in diabetes, was considered by the court to know that the treatment which he was offering was not a cure or proper remedy for diabetes and therefore to be guilty of a scheme to defraud. Kaadt maintained that this attitude would have a crippling effect on the advance of medical science in that it would prevent use of new remedies. The court disagreed, saying that the physician is not specifically limited to all generally approved treatments but that new methods of treatment should pass through an experimental stage of development and that a physician is not authorized to try untested experiments on patients. Kaadt was considered sufficiently educated in his profession that his acts could not be considered mistakes arising out of inexperience or lack of knowledge. The court believed that there was sufficient evidence to support the finding of the board, and the order of revocation was sustained.

3. *Jaffee v. State Department of Health,* decided by Superior Court, Hartford County, Conn., Dec. 8, 1947.—The State Department of Health revoked Jaffee's license on the finding that he treated a patient in a fraudulent, dishonorable, unprofessional and incompetent manner. Jaffee contended that there was no expert testimony to prove this. The court disagreed with Jaffee's contention and held in effect that members of the board of examiners were justified in relying on their own specialized knowledge as to whether the facts presented to them constituted treatment in a fraudulent, dishonorable, unprofessional and incompetent manner. The court concluded that there was no evidence that the board violated rules of law or acted illegally, arbitrarily, capriciously or in abuse of its discretion. The revocation was sustained.

New legislation before state legislatures includes a Massachusetts bill (H. 703) for establishment of the University of Massachusetts in Boston to include a medical school and a similar bill in New York (A. 348) to establish in the city of New York an Empire State University in which will be a school of medicine. Mississippi also contemplates a bill (H. 24) to construct an accredited four year medical school. Recent legislation introduced in Congress would specifically qualify for licensure in the District of Columbia applicants who hold certificates from the National Board of Medical Examiners.

The Importance of Potassium.—Abundant evidence is available indicating the importance of potassium for the normal functioning of nervous tissue. The energy rich carbohydrates and organic phosphates exist and function in nervous tissue much as they do in muscle tissue, and the dependence of them upon potassium can be assumed. There is some evidence in support of this. Potassium, is also, known to play an important role in the release of acetylcholine and has been found essential for the resynthesis of choline acetylase, an enzyme essential for the synthesis of acetycholine. Its importance in the transmission of the electrical impulse along nerve fiber or across the myoneural junction is generally recognized. Gass, Cherkasky, M., and Savitsky, N.: *Medicine,* February 1948.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were publish- in the JOURNAL, April 17, page 1064.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Examination. Montgomery, June 22-24, 1948. Sec., Dr. D. G. Gill. 519 Dexter Ave., Montgomery 4.

ARKANSAS:* Examination. Little Rock, June 3-4. Sec., Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, Texarkana. Eclectic: Little Rock, June 3. Sec., Dr. C. H. Young. 1415 Main St., Little Rock.

CALIFORNIA: Oral. San Francisco, June 5-6; Los Angeles, Aug. 7-8. Written Examination. San Francisco, June 7-10. Los Angeles, Aug. 9-12. Oral and Clinical Examination for Foreign Graduates. San Francisco, June 6. Sec., Dr. Frederick N Scatena, 1020 N. Street, Sacramento 14.

COLORADO:* Examination. Denver, June 21-23. Final date for filing application is June 5. Sec., Dr. J. B. Davis, 831 Republic Bldg., Denver.

DISTRICT OF COLUMBIA:* Examination. May 10-11. Sec., Commission on Licensure, Dr. G. C. Ruhland, 4130 E. Municipal Bldg., Washington.

FLORIDA:* Examination. Jacksonville, June 29-30. Sec., Dr. Harold D. Van Schaick, 6675 Windsor Lane, La Gorce Island, Miami Beach 41.

GEORGIA: Examination. Atlanta, June 8-9. Endorsement. June 10. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

ILLINOIS: Chicago, June 29-July 1. Supt., Dept. of Registration and Education, Mr. Fred W. Ruegg, Springfield.

INDIANA: Examination. Indianapolis, June 15-17, 1948. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, 416 K. of P Bldg., Indianapolis.

KANSAS: Kansas City, June 9-10. Sec., Board of Medical Registration & Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: Examination. Louisville, June 16-18. Sec., Dr. P. E. Blackerby, 620 S. 3rd St., Louisville.

MARYLAND: Medical Examination. Baltimore, June 15-18. Sec.-Treas., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. Homeopathic Examination. Baltimore, June 15-16. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN:* Examination. Parlor A, Olds Hotel, Lansing, June 9-11. Sec., Board of Registration in Medicine, Dr. J. E. McIntyre, 100 W. Allegan St., Lansing.

MISSISSIPPI: Jackson, June 28-29, 1948. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: Examination. St. Louis, May 24-26. Final date for filing application is April 24. Exec. Sec., Mr. John A. Hailey, State Capitol Bldg., Jefferson City.

NEBRASKA:* Examination, Omaha, June 7-9. Dir., Mr. Oscar F. Humble, Room 1009 State Capitol Bldg., Lincoln 9.

NEVADA: Carson City, May 3. Sec., Dr. G. H. Ross, 215 N. Carson St., Carson City.

NEW HAMPSHIRE: Concord, Sept. 9. Sec., Board of Registration in Medicine. Dr. J. S. Wheeler, Room 107, State House, Concord.

NEW JERSEY: Examination, Trenton, June 15-17. Sec., Dr. E S. Hallinger, 28 W. State St., Trenton.

NEW YORK: Examination. Various Centers, June 28-July 1., Sec., Dr. J. L. Lochner Jr., State Education Bldg., Albany.

NORTH CAROLINA: Endorsement. Pinehurst, May 4. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OHIO: Examination. Columbus, June 21-24. Sec., Dr. H.M. Platter, 21 W. Broad St., Columbus 15.

OKLAHOMA:* Oklahoma City, June 2-3. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON:* Examination. July and Jan. Sec., Miss L.M. Conlee, 608 Failing Bldg., Portland.

PENNSYLVANIA: Examination. Philadelphia & Pittsburgh, July. Act. Sec., Bureau of Professional Licensing, Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

SOUTH CAROLINA: Written Examination. Columbia, June 21-23. Endorsement. May 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA:* Pierre, July 20-21. Sec., Dr. Gilbert Cottam, Capitol Bldg., Pierre.

TENNESSEE:* Examination. Memphis & Nashville, June 9-10. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

TEXAS: Waco, June 16-18. Sec., Dr. H. F. Conwally, 1305 Amicable Bldg., Waco.

UTAH: Examination. Salt Lake City, June, 1948. Asst. Dir., Department of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VIRGINIA: Examination. Richmond, June 18-19. Endorsement. Richmond. June 17. Sec., Dr. K. D. Graves. 306 Medical Arts Bldg., Roanoke.

WEST VIRGINIA: Charleston, July 5-7. Comm., Public Health Council, Dr. N. H. Dyer, State Capitol Bldg., Charleston.

WISCONSIN:* Milwaukee, June 29-July 1. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Examination. Cheyenne, June 7. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: Examination. Tucson, June 15. Sec., Mr. Francis A. Roy, Univ. of Arizona, Tucson.

ARKANSAS: Little Rock, May 4. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

COLORADO: Examination. Denver, June 2-3. Sec., Dr. E. B. Starks, 1459 Odgen St., Denver.

CONNECTICUT: Examination. June 12., Exec. Asst., Mr. W. G. Reynolds, 110 Whitney Ave. New Haven 10.

FLORIDA: Examination. June 5. Final date for filing application is May 23. Sec., Mr. M. W. Emmel, Univ. of Florida, Gainesville.

IOWA: Des Moines, July 13, Oct. 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: Examination. Ann Arbor and Detroit, May 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

MINNESOTA: Examination. Minneapolis, June 1-2. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

NEBRASKA: Examination. Omaha, May 4-5. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, Room 1009 State Capitol Bldg., Lincoln 9.

NEW MEXICO: Examination. Santa Fe, May 2. Sec., Miss Marguerite Kilkenny, State Capitol Bldg., Santa Fe.

OREGON: Examination. Portland, June 19. Final date for filing application is June 2. Sec., Basic Science Examining Committee, Dr. C. D. Byrne, Univ. of Oregon, Eugene.

RHODE ISLAND: Examination. Providence. May 12. Chief, Div. of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: Examination. Vermillion. June 4-5. Sec., Dr. G. M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: Examination. Memphis, July 5-6. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis.

WISCONSIN: Examination. Milwaukee, June 5. Final date for filing application is May 29. Sec., Prof. W. H. Barber, Scott & Watson Sts., Ripon.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American Heart Journal, St. Louis

35:1-160 (Jan.) 1948

Electrocardiographic Diagnosis of Right Ventricular Hypertrophy. G. B. Meyers, H. A. Klein and B. E. Stofer.-p.1.

Variations in Deviations of S-T in Anterior Wall Infarction. W. Dressler and H. Roesler.-p. 58.

*Spinal Nerve Root Pain (Radiculitis) Simulating Coronary Occlusion: Common Syndrome. D. Davis.-p. 70.

*Extrasystoles in Groups. D. Scherf and F. J. Romano.-p. 81.

*Use of Dicumarol in Experimental Coronary Occlusion. I. Ineffectiveness of Dicumarol When Ligation is Method of Occlusion. E. J. Beattie, E. C. Cutler, M. Fauteux and others.-p. 94.

Clinical Analysis of S Wave Pattern Electrocardiogram. Investigation Including Extensive Unipolar Lead Studies. J. Fershing and L. A. Baker.-p. 106.

"Angiomesohyperplasia": Generalized Noninflammatory Occlusive Arterial Disease. T. Ray, H. K. Stauss and G. E. Burch.—p. 117.

*Rupture of Heart Following Acute Myocardial Infarction. Incidence in Public Hospital, with 5 Illustrative Cases Including One of Perforation of Interventricular Septum Diagnosed ante Mortem. R. S. Diaz-Rivera and A. J. Miller.—p. 126.

Paroxysmal Auricular Tachycardia at Rate of 86 per Minute: Report of Case. R. Miller, D. Biber and J. S. Perelman.—p. 134.

Wolff-Parkinson-White Syndrome in Case of Congenital Heart Disease. M. H. Stein.—p. 140.

Spinal Nerve Root Pain Simulating Coronary Occlusion.—Davis states that dorsal spine radiculitis with acute attacks of anterior thoracic pain may simulate coronary artery disease. Histories of 10 patients who had pain in the chest characteristic of coronary disease are presented. Attacks were often confined to the substernal or precordial regions. Pain was frequently severe, prolonged and described as a pressure sensation, a heaviness, a viselike constriction or an expanding discomfort. Pain radiated to the left upper extremity and to the neck, accompanied by a choking sensation. Occasionally it radiated to the jaw, and in a few instances severe attacks were accompanied with pallor and excessive perspiration. Several patients complained of respiratory distress. Attacks occurred (1) in bed at night; (2) after certain movements of the spine, such as bending, turning from side to side or getting out of bed, and (3) after such acts as coughing, sneezing, or straining at stool or after prolonged sitting. Most important diagnostically was the reproduction of attacks by pressure over the dorsal vertebrae. Such attacks, although short in duration, could be reproduced in many patients with recent acute symptoms. Induced pain had the same location, distribution and character as in spontaneous attacks. Poor posture, spasm of the posterior cervical muscles and tenderness in the region of the costochondral junctions of ribs and sternum were present in many patients. Diagnosis was confirmed in some by the striking response to therapy consisting of postural correction, bed boards, exercises and, particularly, manipulation and traction of the cervicodorsal spine.

Extrasystoles in Groups.—Scherf and Romano say that two beats following each other within a short time and separated from the next identical group by a longer diastole are classified among the allorhythmias called bigeminy, or coupled beats. This term, coined prior to the electrocardiographic era, includes at least three separate disturbances. There is the succession of groups in which each beat of the basic rhythm is followed by a premature contraction; in this instance the term bigeminy as a synonym for coupled rhythm is generally accepted. A second form was recognized with the aid of the electrocardiograph as due to an auriculoventricular block, and the third disturbance is a rare condition which Wenckebach named true bigeminy. In this type both beats of each group look alike in the electrocardiogram, for they originate in the same focus.

Instances of alteration of cycle length during an auriculoventricular nodal tachycardia and during a paroxysmal ventricular tachycardia in man are described. In the latter case a similar phenomenon was observed during the change from the tachycardia to sinus rhythm following an intravenous injection of quinine. Application of barium chloride or strophanthin to small areas of the cardiac surface of the dog also caused groups of extrasystoles separated by longer pauses. Arrhythmias were often elicited during vagus and following sympathetic stimulation in these experiments. Finally, the phenomenon was observed during warming of the site of origin of extrasystoles produced by subepicardial injection of strophanthin. Similar observations in the literature are discussed.

"Dicumarol" in Experimental Coronary Occlusion.—Successful use of anticoagulant therapy in certain other thrombotic or thromboembolic disease states has stimulated trial of a similar approach to the treatment of acute coronary thrombosis. Beattie and his co-workers determined the effect on experimental coronary artery occlusion of anticoagulant therapy begun after the thrombotic process had begun. Experiments were performed on 40 healthy dogs. At first, attempts were made to produce thrombosis by crushing the artery. At later experiments ligation was used exclusively. Evidence that "dicumarol" has a favorable effect on the evolution or outcome of established experimental myocardial infarction was lacking. However, the authors call attention to the limitations of the experiments.

Rupture of Heart in Myocardial Infarction.—Diaz-Rivera and Miller report that among 1,250 necropsies performed at the Louisville General Hospital during the five years from 1939 to 1944, a total of 147 cases presented myocardial infarction. Of these 94 were old infarcts and 53 were fresh infarcts. In recent infarction, 5 patients died from rupture of the heart. In 4, perforation of the left ventricle occurred, and in 1, rupture of the interventricular septum. Rupture of the interventricular septum was recognized ante mortem. Diagnosis was based on history of severe anginal pain, the sudden appearance of a systolic murmur which rapidly increased in intensity and electrocardiographic evidence of myocardial infarction and right axis deviation. In every instance of rupture of the left ventricle, antemortem clotting in the pericardial sac was observed. It is evident that in the majority of the patients death did not occur instantaneously with cardiac rupture.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol
35:113-224 (Oct.) 1947

*Papillomatous Disease of Renal Pelvis. J. B. Macalpine p. 113.
Bilateral Renal Papillomata: Two Cases. J. B. Macalpine.—p. 132.
Case in which Two Dissimilar Growths, an Adenoma (Adenocarcinoma) and Papillo Carcinoma, Occurred in Same Kidney. J. B. Macalpine.—p. 134.
*Papilloma of Renal Pelvis in Dye Workers: Two Cases, one of which Shows Bilateral Growths. J. B. Macalpine.—p. 137.
Treatment of Bladder Cancer. R. Shackman.—p. 140.
Carcinoma of Ampulla of Vater. J. Morley.—p. 146.
*Use of Autogenous Grafts for Repair of Large Gaps in Peripheral Nerves. H. J. Seddon.—p. 151.
*Histologic Observations on Repair of Nerves by Autografts. W. Holmes.—p. 167.
Cleft Palate and Mechanism of Speech. M. C. Oldfield.—p. 173.
Pheochromocytoma. J. W. S. Blacklock, J. W. Ferguson, W. S. Mack and others.—p. 179.
Thoracoabdominal Wound. Some Observations on 20 Personal Cases. E. G. Tuckwell.—p. 197.
Transplantation of Biceps Tendon as Treatment for Recurrent Dislocation of Elbow. P. P. Reichenheim.—p. 201.
Note on Cranial Autoplasty. H. P. Pickerill.—p. 204

Papillomatous Disease of Renal Pelvis.—Macalpine reviews 19 cases of papillomatous disease of the renal pelvis which were collected over a period of twenty-nine years. The patients have been carefully followed, making it possible to take a long term view and to judge the remote results. The author thinks that tumor cells found in the urine and a papilloma protruding from the ureter as seen cystoscopically is the only unmistakable evidence of a papilloma of the upper urinary passages. Many renal papillomas are clinically indistinguishable from the commoner hypernephromas. Pyelograms are frequently helpful, showing a characteristic filling defect, possibly with a crenated margin. A few cases simulate calculous disease or hydronephrosis. Without a correct diagnosis, the ureter will not be removed and a ureterectomy will be required subsequently. The correct treatment is ureteronephrectomy. If the nature of the disease is known beforehand the passages will not be opened, as papillomatous material would be implanted in the wound, where it invariably takes on cancerous propensities, as illustrated by 4 cases in this series. The terminal ureter is usually more heavily involved than any other part of that tube. It must be cut flush with the bladder, and means must be employed to insure the destruction of seedlings within the intramural ureter. It is unwise to remove a disk of the bladder, because: (*a*) this materially increases the severity of the operation; (*b*) vesical papillomas can be dealt with satisfactorily per urethram (*c*) the fundamental precaution is to guard against implantation in the wound, this being more easily achieved when the section passes through the ureter than when it involves the bladder. A ureteric papilloma may be the primary growth but is more likely to be a seedling from above. In either event the proper treatment is ureteronephrectomy.

Papilloma of Renal Pelvis in Dye Workers.—As early as 1895 Rehn called attention to the fact that papillomatous disease of the bladder is more prevalent among dye workers than among members of the general population. Macalpine observed many examples of these vesical growths in dye workers in Manchester. The 2 patients reported in this paper first were hospitalized with papillomatous disease of the bladder, and later renal pelvic papillomas developed. In the second of these patients the papillomas were bilateral. Renal growths were discovered in 1 case four years and in the other over five years after the vesical neoplasm first became manifest. In each case, though excretion urograms had been obtained at the time of the original investigation and on at least one subsequent occasion, the neoplasm was regularly overlooked till it had grown to a large size, in spite of the fact that the bladders had been under periodic cystoscopic review. The preceding vesical disease had focused attention unduly on that organ. Subsequently it became routine practice to order excretion urograms at relatively short intervals for these papilloma-forming subjects. In the first patient the renal tumor must be regarded as an independent primary neoplasm. The author also regards the tumors of the second patient as three primary growths, and if this view is correct, it proves the strength of the stimulant to tumor formation. The literature records 6 other examples of pelvic papillomas in dye workers.

Autogenous Grafts for Repair of Nerves.—Seddon says that analysis of 1,861 cases of injury to nerves showed that 699 required operative repair. The standard method of repair is mobilization of the nerve stumps, resection back to healthy bundles centrally and peripherally, and end to end suture with the limb in a position that permits easy approximation. Unfortunately, recent experience has shown that if the gap closed is large, say 11 cm. in the case of the lateral popliteal nerve or 9 cm. in the case of the median, the postoperative stretching, however carefully carried out, damages the nerve to such an extent as to preclude useful recovery. End to end suture was carried out in 71 per cent of 699 cases, bulb suture in 0.4 per cent and suture with bone shortening in 0.4 per cent. There is no evidence that heterogenous and homogenous nerve grafts are of the slightest use; only autogenous nerve grafting offers any prospect of success. In 58 cases in which extensive gaps have been repaired by autogenous grafts 52 have been followed long enough to permit assessment. The operation was of value in 35 of 52 cases. Grafts may be taken from any cutaneous nerve, though only from the part in which branches are not given off. The most suitable are the medial cutaneous nerve of the forearm, where it lies in the arm; the sural proximal to the lateral malleolus; the superficial radial proximal to the wrist, and the saphenous in the thigh. Single strands are used for the repair of small nerves; two or four strands may be employed for bridging gaps in large nerves. When two main trunks have been extensively damaged, a segment from the less important may be used for the repair of the gap in the more important nerve. All grafts shrink, and the graft should therefore be about 15 per cent longer than the gap to be repaired. The diameter of the graft or collection of grafts must be at least equal to that of the peripheral stump of the nerve. A graft is revascularized from the nerve stumps but is also nourished from the bed in which it lies. Scar tissue should therefore be removed if possible. In lay grafting is the ideal treatment for partial division of a nerve. Main trunk grafts are sutured in the usual way to the stumps of the host nerve. Cutaneous grafts, whether used singly or in the form of a cable, are best attached with concentrated fibrinogen, which can be made to set rapidly into a firm clot.

Histologic Aspects of Nerve Repair.—Holmes took biopsies from two grafts, each formed of two parallel lengths of the lateral popliteal nerve and placed sixteen and twenty-two months previously in a gap in the medial popliteal nerve. In both cases the lateral popliteal nerve had itself been divided by the original injury. Three of the grafted lengths of nerve were taken from the distal stump and so were predegenerated; these were found to be satisfactorily reinnervated. One of the grafted pieces was taken from the proximal stump and was normal when transplanted; the biopsy from this nerve was necrotic, and there was no evidence of regeneration. In three cases nerves were experimentally transplanted and later examined histologically. One transplant was of a segment of the posterior interosseous nerve and was sutured to a normal proximal stump. It was found to be abundantly reinnervated and normal in all respects. Two segments of the radial nerve were treated as free transplants; they showed some abnormalities of degeneration, but none so severe as to prevent their serving as successful grafts. Full thickness autografts offer considerable prospects of success. Grafts taken from the distal stump of a divided nerve may be more successful than those from the proximal stump, since they are better able to survive the temporary ischemia of transplantation. Excessive collagenization of the endoneurium in the distal stumps of digital nerves is considered to be an important cause of failure in grafting operations in the hand.

J. Royal Inst. Public Health and Hygiene, London
10:382-415 (Dec.) 1947

Infantile Paralysis. H. J. Seddon.—p. 390.
Health Factor in Town Planning. A. Ling.—p. 396.

Acta Medica Scandinavica, Stockholm

129:213-310 (Nov. 25) 1947. Partial Index

*Histamine Level of Blood in Patients with Gastric or Duodenal Ulcer Before and After Treatment with Aluminum Hydroxide. A. C. M. Verschure and T. Strengers.—p. 274.

Predisposing Factors in Colibacillosis. E. Adlercreutz.—p. 282.

Histamine in Ulcer Patients.—Lips and his associates say that although there seems to be a relationship between gastrointestinal ulcers and histamine, some factors still require investigation. They found that of 60 patients in whom gastric or duodenal ulcer had been proved by roentgen examinations, only 10 patients showed an increased histamine level of the blood. There was no apparent correlation between the secretion of gastric acid and the histamine level of the blood. The histamine levels in patients with gastric ulcer were not different from those found in patients with duodenal ulcer. In 37 patients the histamine content of the blood was determined after treatment with diet and continuous administration of colloidal aluminum hydroxide. From these values a definite increase of the histamine became apparent, although a decrease was expected. It is questionable whether the increase is a direct result of the healing of the ulcer or is due to other factors. The authors suggest the following possibilities: 1. A change in p_H of the contents of the colon after administration of aluminum hydroxide may create an optimal medium for a histaminogenic intestinal flora and thus promote the resorption of histamine from the intestine. 2. Most of the patients become constipated by the diet and the long rest in bed. Resorption of histamine from the contents of the colon may therefore last longer and occur more easily. 3. The inflamed tissue around the ulcer, which is rich in histamine, is resorbed during the healing process.

Harefuah, Jerusalem-Tel Aviv

33:173-188 (Dec. 1) 1947

Cholera Epidemic in Egypt and its Potential Danger to Palestine. W. Strauss.—p. 173.

*Preventive Inoculation Against Cholera. W. Silberstein.—p. 174.

Notes on Cholera Epidemic in Burma. E. Steinitz.—p. 175.

Preventive Inoculation Against Cholera.—Silberstein points out that there is no general invasion of the body or of the blood by the cholera vibrio. The micro-organism remains localized in the intestine, and symptoms are due to the action of the vibrio there and to the absorption of the toxin. The cholera vibrio is not brought into direct contact with the blood serum as in the case of typhoid, when the typhoid bacillus invades the blood. Some human beings seem to possess a degree of natural immunity to prevent infection. The acidity of gastric juice apparently suffices for the destruction of the vibrio and may explain the escape from infection in some instances. Vibrios have been found in the feces of carriers without clinical evidence of cholera. One attack of the disease generally confers immunity. In 1885 Ferran injected small doses of a living broth culture subcutaneously, but results were unsatisfactory. In 1892 Haffkine prepared two kinds of living vaccine; results were not sufficiently conclusive. The author thinks that the threat to other countries from the cholera epidemic in Egypt will increase as the epidemic ends there and carriers pass the reopened frontier. Important measures to be taken are protection of the drinking water against infection, continuous supervision of sanitary conditions and strict hygiene in the kitchen. Countrywide protective vaccination, on the other hand, is unnecessary or at any rate premature in view of its uncertain and shortlived effectiveness.

Journal de Médecine de Lyon

28:847-888 (Dec. 5) 1947. Partial Index

Pneumococcic Meningitis. H. Naussac and J. Durant.—p. 847.

*Treatment of Infectious Endocarditis with Regard to 14 Cases Treated with Large Doses of Penicillin: Immediate Results and After Several Months. B. Muller and G. Marandon.—p. 863.

Treatment of Infectious Endocarditis.—Muller and Marandon present observations on 14 patients with infectious endocarditis whom they treated with large doses of penicillin. Five had streptococcic endocarditis, 3 had staphylococcic endocarditis and in the other 6 the causal organism could not be identified. In 10 cases the immediate results were favorable, but in 4 cases the patients died. Treatment with large and sometimes enormous doses of penicillin constitutes a veritable revolution in the treatment of infectious endocarditis. In the great majority of cases it causes complete disappearance of the infectious process. To obtain these favorable results the treatment must be carried out in a hospital under careful medical supervision. The daily dose should be not less than 480,000 units and frequently as high as a million. The daily dose may, if necessary, be increased to 2, 3 or 4 million units or more. The treatment must be continued for more than a month. In order to check the late results and to detect relapses, the patient should be reexamined at definite intervals. The authors were able to ascertain the late results in 9 of their 10 surviving patients; in these the favorable results had persisted for more than four months, in some for more than a year. Since relapses usually occur during the first few months, the late results in the tenth patient cannot as yet be estimated because insufficient time has elapsed.

Schweizerische medizinische Wochenschrift, Basel

77:1350-1376 (Dec. 27) 1947. Partial Index

Tuberculosis of Young People Who Have Passed Legal Age for Attending School. H. Wissler and H. Meier.—p. 1350.

*Effect of Urethane on Normal Blood Picture in Man. S. Moeschlin and J. Meili.—p. 1351.

*Defense Function of Human Body Against Malaria. M. Lauterburg-Bonjour.—p. 1359.

Effect of Urethane on Normal Blood Picture.—Moeschlin and Meili studied the effect of urethane on the blood of 20 persons who were given 3 to 4 Gm. of the drug daily by mouth as a substitute for other sedatives for a period of one to two months. There was a slight increase in the number of lymphocytes in the first two or three days, followed by a pronounced drop in their number, reducing them in four weeks to from one third to one fifth of their former value. There was a successive increase in lymphocytes when urethane was discontinued. The drop in lymphocytes was in general more pronounced in persons whose initial values of lymphocytes were higher than in those with lower initial values. In certain hypersensitive persons the therapeutic dose of urethane used by the authors may cause a nearly complete disappearance of the lymphocytes associated with a pronounced deterioration of the general health, so that the drug must be discontinued, e. g. in Hodgkin's disease or in chronic myeloid leukemia. It is therefore advisable to watch the absolute number of lymphocytes in all patients treated with urethane for a prolonged period. In the majority of instances the effect of urethane on the granulocytes was less pronounced and evidently slower; the granulocytes usually increased in number in the first ten days, on the average by 1,500, and then there was a drop until in the third week their number was below the initial value; after eight weeks, on the average, the neutrophils were reduced by one fourth to one fifth of their initial value, and the same applied to eosinophils and monocytes, while there was no change in the number of the thrombocytes. An individual hypersensitiveness of the granulocytopoiesis toward urethane was observed in 1 case of postencephalitic parkinsonism in which the drop in granulocytes continued for twenty days after the drug was discontinued because of the great drop in lymphocytes. Except in 1 instance the erythrocytes and reticulocytes did not show a definite drop in number. Urethane affects principally the cells observed in chronic leukemias, which are probably degenerated neoplastic cells. It also affects the normal lymphocytes and to a limited extent the normal granulocytes. Urethane has an inhibitory effect on mitosis in all its stages.

Defense Function Against Malaria.—According to Lauterburg-Bonjour, immunity against malaria is of a complex nature. Various mechanisms participate in its production; normal phagocytosis as well as its stimulation by humoral factors, parasiticide and antitoxic substances have been demonstrated. The artificial immunity is not permanent; it is definitely specific not only for the species but even for the strain. In endemic areas man may be benefited by a latent malaria, being protected at least against a new infection with the same malarial strain. It is suggested that the increased incidence of malaria in certain populations which are migrating to other regions may depend on the fact that new strains may not be susceptible to the once developed immune bodies and consequently the plasmodia will have a chance to proliferate, thus causing recurrences of the disease. Intuitive knowledge and observations suggested that treatment with quinine should be instituted only after several attacks of fever. In the light of new research this does not seem to be advisable, since the immunizing forces are too transitory to be relied on.

Book Notices

Trichomonas Vaginalis and Trichomoniasis. By Ray E. Trussell, M.D., Associate in Hygiene and Preventive Medicine, State University of Iowa, Iowa City, Iowa. With an Introduction by E. D. Plass, M.D., Professor of Obstetrics and Gynecology, State University of Iowa. Cloth. Price, $6. Pp. 277, with 23 illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Ill., 1947.

This book is based not only on the author's intensive studies of the subject but also on a review apparently of every paper written about Trichomonas vaginalis and trichomoniasis. In the bibliography there are 1,586 references. The book is divided into three parts. The first deals with T. vaginalis, its morphology, growth requirements, preservation in cultures, chemistry, pathogenicity, identity of species and other characteristics. The second part considers infections due to T. vaginalis, their sites and incidence, source, incubation period, prognosis, pathology, laboratory diagnosis, clinical findings, immunity, relation to puerperal morbidity and abortion and other characteristics. The third section is concerned with treatment.

The author points out that, in spite of a common belief, the three trichomonads which commonly parasitize the human organism are morphologically and culturally distinct, and each one is adapted to its own environment in the mouth, intestine or genitourinary tract. Likewise, the common animal trichomonads are not related to those causing human infections.

Failure to cure trichomoniasis does not depend on an encysted stage, for the existence of which there is no convincing evidence, but on four factors: (1) rectal, urethral and glandular involvement were overlooked; (2) treatment was inadequate or inappropriate; (3) reinfection occurred, or (4) a drug resistant strain developed. The author emphasizes that the final work in the therapy of infections due to T. vaginalis is far from having been written. Much experimental work remains to be done. Ultimately, it is hoped that a compound will be discovered which can be given orally and be effective in eradicating the parasite.

This book is well written, it is authoritative, and it gives an unbiased analysis of every type of treatment advocated for the eradication of trichomoniasis. It has only a few illustrations, but they are clear and instructive. The type used makes reading easy. The book should be read by every one interested in T. vaginalis and trichomoniasis.

Diagnostik der Kinderkrankheiten mit besonderer Berücksichtigung des Säuglings: Eine Wegleitung für praktische Ärzte und Studierende. Von Professor Dr. E. Feer. Fifth edition. Paper. Price, $7.80; 33.60 Swiss francs. Pp. 428, with 285 illustrations. Springer-Verlag OHG, Mölkerbastei 5, Wien I, 1947.

The fifth edition of this popular book is characterized mainly by the clinical point of view for which Feer is so well known. It is not a book on differential diagnosis, as the title may lead one to think, but rather a book on the aids in diagnosis, mainly by means of physical examination. In these days of complicated laboratory examinations it is refreshing to find a book that stresses inspection, palpation and auscultation. The laboratory examinations discussed are limited to routine urinalysis and blood tests, which can be done by the clinician in his office. Technic is not described. Only interpretations are discussed. The author points out symptoms and signs in various diseases and compares the normal with the pathologic. Much space is devoted to symptoms and signs during early infancy, with special reference to digestive disturbances. In this section the author deviates from his plan of the rest of the book and discusses diseases as entities. In his classification of digestive disturbances he follows, in the main, the nomenclature of Finkelstein, such as atrophy and decomposition. He also retains the terms Milchnährschaden and Mehlnärschaden of Czerny-Keller, terminology that is no more used by American pediatricians.

The new edition contains discussions on metabolism, endocrines and vitamin deficiency which were not included in the previous editions. Unfortunately these discussions are inadequate and could have been left out.

Feer's disease (acrodynia) receives a good deal of attention, more so than other infrequent diseases. This, however, is easy to understand and is excusable. The book, which is profusely illustrated, is a useful guide to clinical pediatrics. The most valuable lesson one carries away from it is the importance of observation in clinical medicine.

Synopsis of Obstetrics. By Jennings C. Litzenberg, B.Sc., M.D., F.A.C.S. Third edition. Fabrikoid. Price, $5.50. Pp. 416, with 157 illustrations. The C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1947.

Few changes have been made in this edition. Practically all of the hundred and fifty-seven illustrations have been borrowed from other textbooks just as they were in the first two editions. Several chapters have been rewritten, but there are a few omissions. In the treatment of gonorrhea and syphilis penicillin is not mentioned. Nothing is said of the relationship of rubella in the mother during the first three months of pregnancy to fetal deformities. The author had Dr. R. W. Koucky write a section on the Rh factor in pregnancy, but he himself failed to associate the Rh factor with erythroblastosis. In fact he uses the term erythroblastosis as a synonym for "Edema of the Fetus" (Page 263) and for "General Dropsy" (Page 285), and he does not even mention the Rh factor in the short section on erythroblastosis. In the treatment of placenta previa the author still advocates Braxton Hicks version as one of the procedures, even though this way of treating placenta previa has been used less and less and has been condemned by several obstetric authorities. The use of a Willett or other forceps for traction on the baby's scalp is not mentioned. In the discussions of the various types of uterine hemorrhage blood transfusion is recommended, but nowhere is there a warning about the determination of the Rh factor before blood is transfused into a parturient woman.

In spite of the fact that this book is not up to the minute, it nevertheless contains the essential knowledge of obstetric practices and therefore is helpful.

A Hand-Book of Ocular Therapeutics. By the late Sanford R. Gifford, M.D., F.A.C.S. Revised by Derrick Vail, M.D., D.O., F.A.C.S., Professor of Ophthalmology, Northwestern University Medical School, Chicago. Fourth edition. Fabrikoid. Price $5. Pp. 336, with 66 illustrations. Lea & Febiger, Washington Square, Philadelphia 6, 1947.

This well known book has been revised by Dr. Vail to bring it up to date. The chapter on muscles has been omitted but was not in order in a book on therapeutics. Dr. F. C. Cordes has revised the chapters on specific and nonspecific protein therapy and physical therapy and treatment of optic nerve disease, and Dr. John Bellows has brought up to date the parts on sulfonamide and antibiotic therapy. The book is a handy reference volume on ocular therapeutics and should continue to be popular with practicing ophthalmologists.

Communal Sick-Care in the German Ghetto. By Jacob R. Marcus, Ph.D., Adolph S. Ochs Professor of Jewish History, Hebrew Union College, Cincinnati. The Ella H. Philipson Memorial Publications, Volume I. Cloth. Price, $4. Pp. 335. The Hebrew Union College Press, 34 W. Sixth St., Cincinnati 2, 1947.

This book deals with the sick among Jews through the Middle Ages. Although according to the title the subject is limited to sick care in the German ghetto, the book covers much more territory, extending to the health care of Jews not only in Germany but in the Roman Empire. The greater part of the book discusses the care of the sick among the Jews from the sixteenth to the nineteenth century. Several chapters are devoted to a description of the function of the Hebra Kadisha (The Holy Brotherhood), which made the care of the sick its special province. This care included not only medical and financial aid for the living but burial and ritual services for the dead when the illness terminated fatally. There are several interesting and informative chapters on Jewish hospitals, their number and character in both medieval and modern times.

Throughout the volume, there are historical references to folk medicine and to the care of the insane. Of particular interest is the material dealing with the role Jewish women played in the care of the sick. The book should serve as an excellent reference for anyone interested in the history of health care of the sick during the Middle Ages.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

X-RAY AND RADIUM FOR THE NASOPHARYNX

To the Editor:—Granting that radium treatment is the choice for lymphoid hyperplasia around the mouth of the eustachian tube, is it also indicated for other nasopharyngeal pathologic conditions, such as adenoid regrowths, lymphoid hyperplasia and chronic inflammations of the nasopharynx?

M.D., Arizona.

ANSWER.—Roentgenologists prefer roentgen therapy to radium therapy in diffuse lymphoid tissue in the nasopharynx as in adenoid regrowths and lymphoid hyperplasia. Sometimes combinations of radium and roentgen radiation are used in benign tumors in the nasopharynx. The nasopharynx has been considered the most important location for a primary focus of infection in the upper air passages. This is attributable to the rich content of lymphoid tissue in its mucous membrane. Chronic inflammation of the nasopharynx may be perpetuated by sinusitis, catarrhal or suppurative, of the posterior ethmoids or sphenoids or both.

In cases of chronic inflammation of the nasopharynx (excluding proved lymphoid hyperplasia and infection) investigation of the nose, sinuses, teeth, gingiva and fauces should be undertaken. Infection which is encountered should be thoroughly treated.

DIFFICULTY AFTER THYROIDECTOMY

To the Editor:—A patient had a thyroidectomy nineteen years ago. Since that time there has been a general tightening of the tissues at the site of operation. At present, there is a strong pull in several directions. When the patient speaks or swallows she has an uncomfortable feeling of constriction. She has been treated with negative galvanism, thiosinamine and iodides. All tests are negative. Her surgeon refuses to reoperate to relieve adhesions. I have been the family physician, and at present the responsibility is mine. What more can be done to relieve this tension?

Mary L. Rosenstiel, M.D., Freeport, Ill.

ANSWER.—Development of cancer in the remnant of thyroid tissue must be ruled out. Parathyroid tetany may be diagnosed by determination of an abnormal serum calcium level. If neither condition is present and the patient does not have difficulty in breathing, a sense of "tightening" may be disregarded. In most instances a sensation of tightening in the throat is associated with a functional nervous disturbance. Possible psychogenic factors in the patient's difficulty should therefore be explored.

CATAPLEXY

To the Editor:—A white woman, aged 27, began to have periods of excessive weakness during periods of laughter about one year ago. These have become more numerous and disabling. The spells cause complete relaxation of muscles, with the result that she drops dishes, glasses and on one occasion her child aged 8 months. What is the physiologic or pathologic diagnosis and can specific treatment be recommended?

M.D., Pennsylvania.

ANSWER.—The case described is a typical example of what is known as cataplexy. It is an organic condition due to a structural lesion in the corpora striata which frequently follows an attack of epidemic encephalitis. The original attack is often passed off as "influenza." It is allied with catalepsy, which often occurs in the same person. As the cause is structural, it is not easy to abolish the disease. Many of these persons are considered hysteric and are subjected to suggestion and psychoanalysis to little purpose. Often administration of racemic amphetamine sulfate ("benzedrine sulfate"), 5 mg. one, two or three times a day, will abolish attacks; however, it may be necessary to offset insomnia due to this treatment by giving pentobarbital sodium at night.

ATABRINE AND DEAFNESS

To the Editor:—What information is available on the relationship between "atabrine" and deafness.

David Bernstein, M.D., Brooklyn.

ANSWER.—Conversation with physicians who have used quinacrine ("atabrine") extensively, and reference textbooks give the impression that this drug does not injure the ear. This is different from what happens when quinine is used. In those instances in which quinine and quinacrine are used together it is reasonable to assume that the quinine caused the injury.

CHLORINE AND LYMPHOBLASTOMA

To the Editor:—A man aged 53 has generalized lymphadenopathy. Biopsy of an axillary node was studied and classified as a form of lymphoblastoma. Roentgen and supportative therapy have been utilized since June 1947. For a period of eleven years he had been exposed daily to varying concentrations of chlorine in a room where a chlorinator was in operation. His wife states that he had on numerous occasions suffered episodes of coughing, gasping for air and an abortive shock-like syndrome. An automobile parked outside of the work-room was noted to have some parts pitted. Pitting, after examination, was reported to be "due to chlorine." His family questions the possible relation of his disease to the eleven year exposure to chlorine. I have no adequate answer. What is the correct opinion?

William L. Bennett, M.D., Huntington, N. Y.

ANSWER.—The term chlorolymphoblastoma appears in medical literature and on occasion has given rise to the erroneous belief that chlorine may have been the etiologic agent. Instead, this term derives from the fact that in the condition mentioned certain tissues assume a greenish color. In no known instance has chlorine been accepted as the cause, and usually the condition arises in the absence of exposure to the element. The term lymphoblastoma does not refer to a pathologic entity but instead, in omnibus fashion, embraces a variety of somewhat similar conditions, some of known malignancy and others of apparent nonmalignancy. By some the leukemias are included in the general category, lymphoblastoma. It does not appear that exposure to chlorine contributed to the causation in this instance. In Hueper's "Occupational Tumors and Allied Diseases" (Charles C Thomas, Springfield, 1942) mention is not made of lymphoblastoma, although chlorine is cited as a result of work of others as possibly related to pulmonary neoplastic disease. Gilchrist and Matz encountered no evidence that the war gases, including chlorine, or any nonspecific chemical trauma might be incriminated in the development of any of the leukemias. No residual evidence of chronic myeloid or lymphoid leukemia was recorded among the 70,752 United States soldiers alleged to have undergone gas poisoning in World War I. With respect to pulmonary malignancy, uncertain data suggest that war gases, including chlorine, may have contributed to the causation of pulmonary cancer. Under experimental conditions several hundred dogs have been exposed for periods in excess of one year to high concentrations of chlorine without any significant permanent injury to the pulmonary tract. Nonetheless, epithelial metaplasias of bronchial mucosa have been reported by Ricker and Adelheim in animals exposed to chlorine gas. In the present instance no warrant exists for attributing the lymphoblastoma to chlorine. Chlorine is a highly active primary irritant, but before it reaches the blood stream it has been altered to harmless sodium chloride.

ACUTE COLLAPSE FOLLOWING SPINAL ANESTHESIA

To the Editor:—What are the references to literature regarding cerebral cortical changes that may take place with drop in blood pressure following spinal anesthesia with subsequent acute collapse and cardiac and respiratory failure? The patient recovers after a few minutes; begins to breathe and to have normal heart beat and blood pressure.

Is there evidence indicating that such persons through deprivation of oxygen to cortical cells will subsequently lead a vegetative existence without normal consciousness?

Milton T. MacDonald, M.D., New Bedford, Mass.

ANSWER.—Reference has been made many times in the literature to damage to the brain which followed use of various kinds of anesthetics and which resulted from a variety of conditions during anesthesia. C. B. Courville (Asphyxia as a Consequence of Nitrous Oxide Anesthesia, *Medicine* **15**:129-245 [May] 1936) has called attention to the damage to the brain which may follow the use of nitrous oxide and oxygen, and similar experiences have been reported in regard to the use of other anesthetics, including "pentothal sodium" and ether. It naturally follows that similar damage could occur as a result of collapse during spinal anesthesia. Some of the more recent references are to work by: Leonid Walter (Observations on Spinal Analgesia, *Current Researches in Anesth. & Analg.* **20**:132-144 [May-June] 1941); Stanton Belinkoff (Coma During and Following Spinal Anesthesia, *Ann. Surg.* **122**:278-286 [Aug.] 1945); E. M. Hammes (Neurological Complications Associated with Spinal Anesthesia [Eight Cases], *Minnesota Med.* **26**:339-345 [April] 1945); Rolf Lium (Cardiac Arrest After Spinal Anesthesia: Report of a Case with Recovery, *New England J. Med.* **234**:691-692 [May 23] 1946), and A. B. Noble (Cerebral Anoxia Complicating Spinal Anaesthesia, *Canad. M. A. J.* **54**:378-379 [April] 1946).

A variety of results have been observed. In some cases the patient never regains consciousness and dies ten to twenty hours after resumption of breathing and after the return of pulse rate and blood pressure to satisfactory levels. Also, partial recovery, as well as full recovery, may occur.

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NUTRITIONAL REQUIREMENTS DURING PREGNANCY AND LACTATION

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Boston

The normal physiologic processes of the body are greatly altered during pregnancy and lactation, and additional demands are imposed on the maternal organism during each period. Digestion and absorption from the intestinal tract are frequently impaired, especially during the early months of pregnancy, and nutritional requirements are considerably elevated during the latter half of pregnancy and during lactation. It is not strange, therefore, that evidences of nutritional deficiencies are more likely to appear at these times, and it is obvious that the diets of pregnant and lactating women deserve special consideration. Since considerable evidence has accumulated in recent years which indicates that faulty nutrition during pregnancy may affect the pregnant woman or her fetus in ways not usually considered to be signs of malnutrition, some of the studies from which this evidence has come will be reviewed. They provide a background for understanding the special requirements of this period and the bases for the nutritional allowances usually recommended. They also indicate the importance of including evaluation of nutritional status and dietary advice as a routine part of prenatal care.

Since the purpose of this article is to summarize our present understanding of nutrition as it relates to pregnancy and lactation, no attempt will be made to review the literature completely. Garry and Stiven[1] have reviewed the earlier literature from the standpoints of human research and animal experimentation; Garry and Wood[2] have discussed developments in the human field during the last ten years; Burke[3] has emphasized the major developments especially in human research, and Warkany[4] has summarized the manifestations of prenatal nutritional deficiency demonstrated by animal experimentation.

RECENT HUMAN STUDIES INDICATING THAT NUTRITION IS AN IMPORTANT FACTOR IN PREGNANCY

A number of antepartum studies on relatively large numbers of women, which have included careful evaluations of their diets during pregnancy or have provided supplements to their customary diets, have demonstrated a surprisingly strong relationship between the character of the maternal diet on the one hand and the course or outcome of pregnancy and the development of the fetus on the other. The earliest report of this type to attract attention was based on a study in Toronto, Canada, by Ebbs, Tisdall and Scott.[5] Three groups of women were studied during the last half of pregnancy. The diets of the women in one group were supplemented to an excellent nutritional level; another group of women was taught an excellent diet for pregnancy, while the third group remained on poor diets and so served as controls. The incidences of abortions, premature births, stillbirths and neonatal deaths were significantly higher in the group on a poor diet. Not only did the women in the groups with supplemented and good diets have healthier babies, but they themselves proved to be better obstetric risks; they suffered fewer complications, including less toxemia, and they had fewer difficulties during labor, delivery and the postpartum period. The ability of the mother to nurse her infant also appeared to be influenced by the quality of her diet during pregnancy.[6]

A committee of the People's League of Health of England investigated the influence of nutrition of expectant and nursing mothers on maternal and infant morbidity and mortality. Supplementary minerals and vitamins were given to 50 per cent of about 5,000 English women, the remainder serving as controls. The reports of this committee[7] indicate that the incidence of toxemia was 30 per cent lower in the group on a supplemented diet than in the control group. The committee claimed that "a diagnosis of toxaemia cannot be based upon hypertension by itself, as this frequently connotes . . . an essential hypertension," and that the diagnosis of toxemia on the basis of albuminuria, edema, etc., with or without hypertension, but generally with hypertension, has "the advantage of segregating for special study those cases in which the diagnosis of toxaemia rests on a reasonably secure foundation." On this basis the primiparas who received the supplements were found to be protected against toxemia to a sig-

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This paper, prepared at the request of the Council of Foods and Nutrition, is one of a series which will appear in THE JOURNAL. The entire series will appear later in book form as the Council's Handbook of Nutrition.

From the Department of Maternal and Child Health, School of Public Health, Harvard University. Assistant Professor of Maternal and Child Nutrition (Mrs. Burke) and Professor of Maternal and Child Health (Dr. Stuart).

1. Garry, R. C., and Stiven, D.: A Review of Recent Work on Dietary Requirements in Pregnancy and Lactation, with an Attempt to Assess Human Requirements, Nutrition Abstr. & Rev. **5:** 855-887 (April) 1936.

2. Garry, R. C., and Wood, H. O.: Dietary Requirements in Human Pregnancy and Lactation: A Review of Recent Work, Nutrition Abstr. & Rev. **15:** 591-621 (April) 1946.

3. Burke, B. S.: Nutrition During Pregnancy: A Review, J. Am. Dietet. A. **20:** 735-741 (Dec.) 1944.

4. Warkany, J.: Manifestations of Prenatal Nutritional Deficiency, in Harris, R. S., and Thimann, K. V.: Vitamins and Hormones: Advances in Research and Applications, New York, Academic Press, Inc., 1945, vol. 3, pp. 73-103.

5. Ebbs, J. H.; Tisdall, F. F., and Scott, W. A.: The Influence of Prenatal Diet on the Mother and Child, J. Nutrition **22:** 515-526 (Nov.) 1941; Milbank Mem. Fund Quart. **20:** 35-46 (Jan.) 1942.

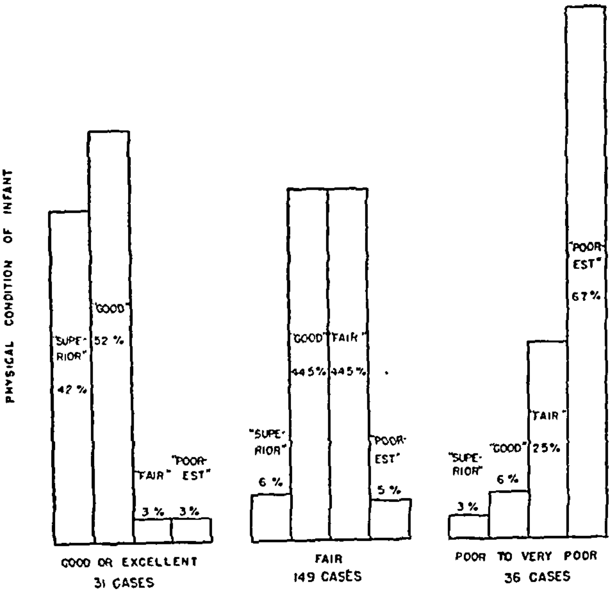
6. Ebbs, J. H., and Kelly, H.: The Relation of Maternal Diet to Breast Feeding, Arch. Dis. Childhood **17:** 212-216 (Dec.) 1942.

7. Nutrition of Expectant and Nursing Mothers, Interim Report of the People's League of Health, Lancet **2:** 10-12 (July 4) 1942. The Nutrition of Expectant and Nursing Mothers in Relation to Maternal and Infant Mortality and Morbidity, The People's League of Health, J. Obst. & Gynaec. Brit. Emp. **53:** 498-509 (Dec.) 1946.

nificant degree, but the results were favorable in the multiparas to a lesser degree. The incidence of prematurity on the basis of weeks of pregnancy was decidedly reduced in the supplemented diet group. The committee emphasized the importance of this finding, since in England about 50 per cent of the infant deaths under 1 month of age are due to prematurity.

Another study carried out by the National Birthday Trust Fund and reported by Balfour[8] included nearly 20,000 women chosen from the lowest income groups in England and Wales. One group of women was fed a yeast supplement, while another group was furnished supplements of vitamins A and D as well as calcium, phosphorus and iron. All the groups received additional milk, so that the chief dietary differences between the groups were in the concentrates fed. Differences in age, parity and social and economic conditions were in favor of the control group. Hence, it can be fairly assumed that any favorable results in the experimental group were due to improvements in diet. Statistically, significant reductions in the stillbirth and neonatal mortality rates were observed, particularly in the group fed the vitamin B supplement. The maternal deaths were extremely few despite the large number of cases. There was a slight but not significant reduction in the incidence of toxemia in the supplemented diet groups.

Burke, Beal, Kirkwood and Stuart[9] studied a group of women drawn from the prenatal clinics of the Boston Lying-in Hospital. Detailed nutrition histories were obtained at intervals during pregnancy. An over-all relationship was found to exist between a good or excellent diet during pregnancy and good physical condition of the infant at birth. This relationship is shown in the chart.



Relationship of prenatal nutrition to the physical condition of the infant at birth and within first two weeks of life (from Burke, Beal, Kirkwood and Stuart[9b])

In the 216 cases studied, all the stillborn infants, all except 1 of the infants who died in the neonatal period, all except 1 of the premature infants, most of the infants with major congenital defects and all the infants considered to be "functionally immature" were born to women in the poorest diet group. In contrast, 94 per cent of the infants born to mothers on good or excellent diets during pregnancy were in good or excellent physical condition at birth. A significant relationship was found to exist between the antepartum diet and the course of pregnancy, although this relationship was less pronounced than that with the condition of the infant at birth. The relationship between the general dietary rating during pregnancy and the incidence of toxemia was also significant. No statistically significant relationship for primiparous women was found between the antepartum diet and the length of labor. However, there were many more difficult types of delivery in the poorest diet group, despite the fact that these infants at birth averaged almost 3 pounds (1,363 Gm.) lighter in weight and several centimeters shorter in length than the infants of mothers whose diets were good or excellent.

Cameron and Graham,[10] working at the Glasgow Royal Maternity and Women's Hospital, studied the food intakes of mothers of stillborn infants, mothers of prematurely born infants and an equal number of mothers of normal full term infants. The average dietary intakes of the mothers with full term infants were superior in all respects; the superiority was greatest in protein, calcium and phosphorus. Apparently the vitamin content of these diets was not evaluated. These workers tested the validity of their observations in a practical way. Several hundred women attending the prenatal clinics of the hospital had their diets carefully supervised during the late months of pregnancy and an equal number whose diets were unsupervised served as controls. The average age and parity of the two groups were not significantly different. The incidences of stillbirths and premature births were significantly higher in the groups with unsupervised diets. Although there were more neonatal deaths in the control group, the difference in this respect was not significant.

Under the severe restrictions imposed by war, England appears to have profited considerably with respect to health as a result of her need to utilize all available food as efficiently as possible. Although the diet has been extremely monotonous, the average nutritional quality of the English diet has improved. This has been especially true for the poorer classes to whom are born the major proportion of the infant population. Previous to the war the diet of the pregnant woman in the lower income brackets in England[11] was poorer than that of the average adult, but during the war special attention was focused on her diet. For the first time in the history of England special food was made available to all pregnant women in the form of additional milk, eggs, supplementary vitamins and other extra rations when possible. The Ministry of Health and the Ministry of Food instituted widespread propaganda programs for the use of these extra rations. A study of the stillbirth rates in England and Wales[12] from

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[8] Balfour, M. I.: Supplementary Feeding in Pregnancy, Lancet **1**: 208-211 (Feb. 12) 1944.

[9] (a) Burke, B. S.; Beal, V. A.; Kirkwood, S. B., and Stuart, H. C.: Nutrition Studies During Pregnancy: I. Problem, Methods of Study and Group Studied; II. Relation of Prenatal Nutrition to Condition of Infant at Birth and During First Two Weeks of Life; III. Relation of Prenatal Nutrition to Pregnancy, Labor, Delivery and the Postpartum Period, Am. J. Obst. & Gynec. **46**: 38-52 (July) 1943; (b) The Influence of Nutrition During Pregnancy upon the Condition of the Infant at Birth, J. Nutrition **26**: 569-583 (Dec.) 1943. (c) Burke, B. S.; Harding, V. V., and Stuart, H. C.: Nutrition Studies During Pregnancy: IV. Relation of Protein Content of Mother's Diet During Pregnancy to Birth Length, Birth Weight and Condition of Infant at Birth, J. Pediat. **23**: 506-515 (Nov.) 1943.

[10] Cameron, C. S., and Graham, S.: Antenatal Diet and Its Influence on Stillbirths and Prematurity, Glasgow M. J. **24**: 1-7 (July) 1944.

[11] McCance, R. A.; Widdowson, E. M., and Verdon-Roe, C. M.: A Study of English Diets by the Individual Method: III. Pregnant Women at Different Economic Levels, J. Hyg. **38**: 596-622 (Sept.) 1938.

[12] Sutherland, I.: The Stillbirth-Rate in England and Wales in Relation to Social Influences, Lancet **2**: 953-956 (Dec. 28) 1946.

1928 through 1944 showed that a sharp drop occurred in all counties after this rationing program was instituted. In the poorest economic districts the drop has been highest; in Wales, for example, it amounted to approximately 35 per cent. The neonatal death rate has apparently declined similarly but to a less degree. These changes occurred at a time when all conditions of life other than nutrition had deteriorated.

Baird[13] in Scotland has shown that among the women in the lower socioeconomic groups the incidence of prematurity was twice, the stillbirth rate three times, and the neonatal mortality rate four times the comparable rates found in the women of the upper economic groups. Baird discussed the fact that the stillbirth and neonatal death rates appear to be controlled by social conditions which operate through the mother. He emphasized the fact that in England, Wales and Scotland the stillbirth rate has fallen during the war period and that all age groups and parities have been affected uniformly. He referred to the apparent operation of some factor on a national scale and he considered it probable that improvement in the diets of the poorer women is the explanation.

Severe famine conditions due to war, such as those which existed in Holland for a number of months during the winter of 1944 and spring of 1945 and in Leningrad during the siege of that city, have contributed also to knowledge of the effect of impaired nutrition during pregnancy on mother and fetus. Smith,[14] working in Holland, found that about 50 per cent of the women suffered from amenorrhea and were presumably infertile during the hunger months and that this disappeared promptly with the return of food. The birth rate fell sufficiently to reduce the number of births nine months later to about one third of the usual number. The birth weights of infants born at full term decreased abruptly during the hunger months, and rose almost as abruptly as Holland emerged from this severe starvation period. A significant decline in birth length was also noted, but was less pronounced than the change in weight. Other effects presented by Smith were given with caution as to their statistical reliability because of Holland's abnormal conditions. The available data in regard to abortions were considered useless. There appeared to be only a slight increase in premature births, while the frequency of stillbirths and neonatal deaths in hospitals was not increased. A slight but not significant increase in congenital malformations did occur. The sharp fall in the conception rate associated with amenorrhea may have so altered the situation as Antonov[15] suggested, as to have allowed only those women to become pregnant whose nutritional state was better than most or who for one reason or another received additional food. As a result of studies carried out in Leningrad, Antonov found that in the first half of the period of the siege the stillbirth rate rose to 5.6 per cent or twice the normal figure, the rate of premature births rose to the unusually high figure of 41.2 per cent and the neonatal death rate to 21.2 per cent. The total number of births in this period in the Leningrad State Pediatric Institute was 414. Within the next six month period the prevalence of amenorrhea was widespread, and, owing to a further sharp drop in the birth rate in Leningrad, only 79 women entered the institute for delivery. Among these the rates for prematurity, stillbirths and neonatal deaths were within normal limits. It was shown that for various reasons the majority of these women had considerably better food than was usual at that time.

Toverud[16] reported a study of approximately 1,000 pregnant women in a special health district of Oslo who, as a part of prenatal care, were given nutritional guidance during pregnancy. Her results indicate clearly a relationship between the maternal diet, the mother's health and course of pregnancy, as well as benefits to the newborn infant. The stillbirth rate in the supervised group for the years 1939 to 1944 averaged 16 per thousand live births compared to 30 per thousand for the city of Oslo, and the neonatal death rate was 11 per thousand compared to 20.

RESULTS OF MATERNAL DIETARY DEFICIENCY DURING PREGNANCY IN EXPERIMENTAL ANIMALS

In the literature dealing with animal experimentation there are many illustrations of fetal damage resulting from maternal dietary deficiency. The recent work of Warkany[17] and his associates in relation to congenital malformations is extremely important. He stated that:

> Genetics, infectious and actinic factors have been proved to be etiologic principles leading to malformations in mammals, including man. It has been suspected many times that malnutrition of the embryo can also be an etiologic factor;

Warkany has shown that in the maternal diet of the rat the presence or absence of sufficient riboflavin between the thirteenth and the fifteenth day of gestation is a decisive factor in the normal development of the skeleton of the embryo. Riboflavin is known to be essential for normal growth in that it is essential to cell respiration, and it would appear to be necessary also for normal embryonic differentiation. When the maternal diet of the experimental animal is made deficient in vitamin D, Warkany[18] has shown that malformations of an entirely different type result. More recently these same workers have demonstrated the development of certain congenital defects of the eye together with certain tissue defects in rats when the maternal diet is deficient in vitamin A.[19]

Warkany[20] offered the following explanation of the maternal-fetal relation in which congenital malformations may result:

> The stores of the maternal tissues act as "buffers" which prevent deprivation of the developing embryo as long as possible. In fact, it was assumed until recently that these maternal stores either protect the offspring completely, thus resulting in the delivery of normal young, or that in the case of extreme dietary deficiency the embryos die in utero. Although there is some truth in this "all or none" theory, it is not entirely correct. Between these two there exists a narrow range in which maternal nutritional deficiency may result in arrest of the embryos' development without causing death. In this case congenitally deformed offspring may be the result.

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[13] Baird, D.: The Influence of Social and Economic Factors on Stillbirths and Neonatal Deaths, J. Obst. & Gynaec. Brit. Emp. **52**: 217-234, (June); 339-366 (Aug.) 1945.

[14] Smith, C. A.: Effects of Maternal Undernutrition upon the Newborn Infant in Holland (1944-1945), J. Pediat. **30**: 229-243 (March) 1947.

[15] Antonov, A. N.: Children Born During the Siege of Leningrad in 1942, J. Pediat. **30**: 250-259 (March) 1947

[16] Toverud, K. U.: Beretning om de Første 6 års arbeid ved Oslo kommunes helsestasjon for mor og barn pa Sagene (1939-1944), Oslo, Fabritius and Sønner, 1945, pp. 1-158.

[17] Warkany, J.: Congenital Malformations Induced by Maternal Nutritional Deficiency, J. Pediat. **25**: 476-480 (Dec.) 1944.

[18] Warkany, J.: Effect of Maternal Rachitogenic Diet on Skeletal Development of Young Rat, Am. J. Dis. Child. **66**: 511-516 (Nov.) 1943.

[19] Warkany, J., and Schraffenberger, E.: Congenital Malformations Induced in Rats by Maternal Vitamin A Deficiency: I. Defects of the Eye, Arch. Ophth. **35**: 150-169 (Feb.) 1946.

[20] Warkany, J., and Schraffenberger, E.: Congenital Malformations Induced in Rats by Maternal Nutritional Deficiency: VI. The Preventive Factor, J. Nutrition **27**: 477-484 (June) 1944.

No one thus far has proved a relation between congenital malformations in man and maternal nutritional deficiency.

RECOMMENDED NUTRITIONAL ALLOWANCES FOR PREGNANCY

With such strong evidence that good diet during pregnancy lessens the likelihood of complications and contributes to a safer labor and delivery, there would seem to be ample reason for intensive efforts on the part of obstetricians and general practitioners to improve the diets of all pregnant women coming to them for prenatal care. The added evidence that women who have excellent or good diets during pregnancy are much more likely to have healthy well developed infants, and much less likely to have stillborn or prematurely born infants or infants who die in the neonatal period, increases the incentive to improve maternal dietaries.

The nutritional allowances for pregnancy (fourth through ninth months) as recommended by the Food and Nutrition Board of the National Research Council [21] are given in table 1, as well as the daily allowances recommended for the normal woman (sedentary) and for the lactating woman.

Recommended Daily Nutritional Allowances, Normal Woman, Pregnancy and Lactation
(Food and Nutrition Board, National Research Council [21])

Nutritional Essentials	Normal	Pregnancy (4th Through 9th Month)	Lactation
Calories *	2,100	2,500	3,000
Protein (Gm.)	60	85	100
Calcium (Gm.)	0.8	1.5	2.0
Iron (mg.)	12	15	15
Vitamin A, I. U.†	5,000	6,000	8,000
Ascorbic acid (mg.)	70	100	150
Thiamine (mg.)	1.1	1.8	2.0
Riboflavin (mg.)	1.5	2.5	3.0
Nicotinic acid (mg.)	11	18	20
Vitamin D, I. U.	...	400-800	400-800

* Energy requirements vary with activity, size of the person, etc.

† The requirement for vitamin A may be less if it is provided as vitamin A and may be more if chiefly in the form of carotene.

While many persons consider these allowances to be liberal, it should be remembered that they were designed to serve as guides and that they include a margin of safety over the minimum requirement for each nutrient (i. e., the amount which will just prevent clinical signs and symptoms of deficiency). In advising women in regard to their diets during pregnancy, our aim should be to assure that enough of each nutrient is included in the food actually eaten to provide for the best possible health during pregnancy and in preparation for labor, delivery and the postpartum period, as well as to provide an environment which will permit the optimum growth and development of the fetus. These allowances presuppose that women enter pregnancy in optimum nutritional condition, a supposition which is often far from true. Although the increased requirements up to the fourth month are so small as to be negligible, if the diet has not been good previous to pregnancy it should be improved as soon as pregnancy is recognized. Ideally, women should be taught as a part of their general education that it is important to enter pregnancy in excellent nutritional state. If Warkany's findings in relation to congenital malformations in animals are even in part applicable to man, correcting the diet of the pregnant woman after the first three months would not be effective in preventing congenital malformations if deficient diet is a factor. It is probably true that a woman's long time food habits prior to pregnancy, her diet early in pregnancy and her diet during the latter part of pregnancy all have important, although possibly different, effects on both the mother and fetus. To change a woman's food habits to any extent is a difficult task; she must be motivated to do so, and the woman who is found to have poor food habits in pregnancy has probably had the same habits for a long time; in fact, her food habits often represent long time family dietary patterns.

CALORIES AND WEIGHT GAIN DURING PREGNANCY

The energy requirement is given by the National Research Council as 2,500 calories, an increase of approximately 20 per cent above the normal requirement under sedentary conditions. However, the caloric requirement varies widely with activity. The important consideration is that the diet during pregnancy is a much more special diet than is often appreciated because as pregnancy advances the requirements for protein, minerals and vitamins are increased in some instances approximately 100 per cent (table 1), while at no time is the caloric requirement more than about 20 per cent above the woman's normal energy needs. Because it takes approximately 2,000 calories of carefully selected food to carry these structural and regulatory requirements, the freedom of choice is narrowed considerably during pregnancy in comparison to the normal diet, in which only about 1,200 calories are needed to carry the protein, minerals and vitamins.

The increased energy requirement during pregnancy is due to increased basal metabolic rate from the fourth month to term. According to Root and Root,[22] the basal metabolic rate is elevated 23 per cent at term. The increase has been shown by Carpenter and Murlin [23] to be due largely to fetal tissue, which has a higher specific metabolism per unit of weight than maternal tissue. They found that the basal metabolic rate of the woman just before delivery was equal to the rates of the mother and infant taken separately a few days after delivery. More recent work by Rowe and Boyd [24] and Johnston, Hunscher, Macy and others [25] indicates that it is elevated about 15 to 20 per cent above normal and that its elevation may also be subject to hormonal changes occurring in pregnancy. Sontag, Reynolds and Torbet [26] claimed that some women have an increase in basal rate of 30 per cent or more during gestation while others show an actual decline in rate.

The pregnant woman should be allowed to gain 20 to 25 pounds (9.1 to 11.4 Kg.) above her ideal normal weight for height, age and build. This implies that the underweight woman should be allowed to gain more and the overweight woman should be carefully controlled by restricting calories only while the structural requirements are fully met. Kerr [27] reported an average gain of 22.9 pounds (10.4 Kg.) in a case study of 500 normal primiparas. He found that increasing weight gains in pregnancy are associated with increasing weights of infants at birth, but that the latter increase has no influence on the duration of labor. Unpublished data by Burke indicate that if an underweight woman gains as much as or more during pregnancy than a normal or overweight woman, she tends to give birth to a smaller infant, her own body showing a net gain at the expense of her fetus. Conversely, if an overweight woman restricts her calories sufficiently, she experiences a net loss in weight herself, but her infant tends to be heavier than average. Here again is evidence that the fetus is parasitic on the mother to a degree, depending on the mother's nutritional condition when she enters pregnancy as well as on the quality and quantity of her diet during pregnancy.

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[21] Recommended Dietary Allowances, Food and Nutrition Board, National Research Council, Reprint and Circular Series no. 122, revised 1945; pp. 1-18.

[22] Root, H. F., and Root, H. K.: The Basal Metabolism During Pregnancy and the Puerperium, Arch. Int. Med. **32**: 411-424 (Sept.) 1923.

[23] Carpenter, T. M., and Murlin, J. R.: The Energy Metabolism of Mother and Child Just Before and Just After Birth, Arch. Int. Med. **7**: 184-222 (Feb.) 1911.

[24] Rowe, A. W., and Boyd, W. C.: The Metabolism in Pregnancy; IX. The Foetal Influence on the Basal Rate, J. Nutrition **5**: 551-569 (Nov.) 1932.

[25] Johnston, J. A.; Hunscher, H. A.; Hummel, F.; Bates, M. F.; Bonner, P., and Macy, I. G.: The Basal Metabolism in Pregnancy, J. Nutrition **15**: 513-524 (May) 1938.

[26] Sontag, L. W.; Reynolds, E. L., and Torbet, V.: The Relation of Basal Metabolic Gain During Pregnancy to Nonpregnant Basal Metabolism, Am. J. Obst. & Gynec. **48**: 315-320 (Sept.) 1944.

[27] Kerr, A., Jr.: Weight Gain in Pregnancy and Its Relation to Weight of Infants and to Length of Labor, Am. J. Obst. & Gynec. **45**: 950-960 (June) 1943.

PROTEIN

The protein allowance recommended by the Food and Nutrition Board of the National Research Council for the latter half of pregnancy is 85 Gm. daily or approximately 1.5 Gm. per kilogram of body weight. This represents an increase of 40 to 50 per cent above normal. Whatever the exact requirement may be, there is no doubt that the amount of protein needed for pregnancy is increased considerably over the normal. Nitrogen balance studies by several workers[28] have shown that women store normally relatively large amounts of protein during pregnancy over and above that needed by the fetus and the accessory structures. These metabolism studies indicate that a protein requirement of 845 to 900 Gm. (135 to 145 Gm. of nitrogen) above maintenance is representative of the total net requirement for the fetus and its adnexa during gestation and that under favorable circumstances a woman retains an additional storage of 1,250 to 2,500 Gm. of protein (200 to 400 Gm. of nitrogen). These figures represent an increased requirement of 10 to 20 Gm. of protein daily during the latter months of pregnancy.

A negative nitrogen balance sets in abruptly just before term,[29] and there is a substantial loss of nitrogen from the maternal organism during parturition and the postpartum period. For women who nurse their infants there is an additional loss in the breast milk amounting to 1 to 1.5 Gm. of nitrogen daily, depending on the amount of milk secreted. Thus, it is usual to find a negative nitrogen balance throughout the puerperium and often during the lactation period as well. The storage of nitrogen during pregnancy may, therefore, be regarded in part as a natural mechanism to provide in advance for the large losses occurring during delivery and the puerperium and in part as preparation for the high requirements of lactation.

In addition to the nitrogen balance studies already discussed, the recent studies of Burke and others[9c] indicate that less than 75 Gm. of protein daily during the latter part of pregnancy results in an infant who tends to be short, light in weight and likely to receive a low pediatric rating in other respects.

If it is assumed that an allowance of 60 Gm. (approximately 1 Gm. per kilogram of body weight) is desirable for the average nonpregnant woman and that an increase of 15 to 20 Gm. daily is needed in the latter part of pregnancy, the protein allowance of 85 Gm. daily suggested by the Food and Nutrition Board of the National Research Council appears liberal and adequate to care for individual differences. Williams[30] emphasized the important point that this figure presupposes a previously normal protein intake and nutritional state.

The question arises how nearly the diets of pregnant women approximate this allowance. Burke and others[9c] in studies at the Boston Lying-in Hospital found that only 10 per cent of the women were consuming 85 Gm. of protein daily, while 68 per cent consumed less than 70 Gm., 38 per cent less than 55 Gm. and 14 per cent less than 45 Gm. of protein daily during this important period of fetal growth and development. Arnell and others[31] found that among pregnant women in New Orleans 18 per cent took less than 42.5 Gm. of protein daily, i. e., less than half the recommended allowance, and 79 per cent took less than 70 Gm. daily. Williams and Fralin[32] in Philadelphia showed that only 13 per cent were taking the recommended daily allowance. It should be emphasized that an amazingly large number of women do not eat a diet well supplied with protein even for their normal needs and do not change their habits appreciably during pregnancy. Careful instruction in regard to the protein foods needed during pregnancy is therefore essential. The pregnant woman needs to be taught the importance of 1 quart of milk (about 1,000 cc.) daily (for its 32 Gm. of protein), at least ¼ pound (113 Gm.) of lean meat or its equivalent (for its 24 Gm. of protein) and an egg or equivalent daily (for another 6 Gm.). These animal foods or their equivalents will furnish approximately 65 Gm. of protein of high biologic value. A potato together with at least four servings of bread and cereal foods and the other necessary foods in a well balanced diet will furnish about 20 to 25 Gm. more protein in the day's diet.

Amenorrhea, noted by Smith in Holland and Antonov in Leningrad as a result of recent war conditions and already mentioned, also has been described by Sydenham[33] among British civilians in Stanley Camp, Hong Kong, China. Sydenham concluded that although emotional shock or change of environment may have explained many of the irregularities of menstruation and cases of amenorrhea of short duration, the 53.7 per cent of women with amenorrhea lasting more than three months—in some cases lasting a year or more—could hardly be explained on this basis. He stated that malnutrition, especially deficiency of protein, appeared to be the most probable cause.

The role of protein in relation to toxemia of pregnancy is still a debated problem. Arnell[31] found a higher incidence of toxemia among patients with a low protein diet than among those with a liberal intake.

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[30] Williams, P. F.: Importance of Adequate Nutrition in Pregnancy, J. A. M. A. **127:** 1052-1055 (April 21) 1945.

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[32] Williams, P. F., and Fralin, F. G.: Nutrition Study in Pregnancy: Dietary Analyses of Seven-Day Food Intake Records of Five Hundred Fourteen Pregnant Women; Comparison of Actual Food Intakes with Variously Stated Requirements, and Relationship of Food Intake to Various Obstetric Factors, Am. J. Obst. & Gynec. **43:** 1-20 (Jan.) 1942.

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Holmes[34] reported the incidence in women taking low protein diets to be twice as great as that in similar groups taking high protein diets. Burke and others[9a] found a significant relationship between the incidence of preeclampsia and the general antepartum dietary rating. While the protein intake was low in many of these cases, many other dietary essentials were also low, so that it was not possible to conclude that protein was the sole dietary factor involved. We wish to emphasize the difficulty in human studies of proving conclusively that a given nutrient is responsible for a given effect. Strauss[35] has contended that in the presence of protein insufficiency the colloid osmotic pressure of serum protein is altered. This causes edema and a consequent disturbance of the electrolyte balance which, in turn, may result in elevation of the blood pressure and other symptoms of toxemia.

Dieckmann[36] has, however, expressed the view that toxemia and a low protein intake are not related. Moreover, reports from certain areas in which starvation occurred in World War II have indicated that the incidence of toxemia fell sharply among pregnant women during the period of extreme food restriction. Smith[37] gave figures regarding the incidence of toxemia in Holland showing that during the months of acute hunger the incidence fell sharply. He discussed the possible explanations of this sharp contrast in findings.

Although there is still controversy among well informed persons concerning the cause of toxemia, it is generally accepted that a high protein diet does not predispose to the condition. The major weight of evidence would seem to indicate that toxemia occurs more often among chronically malnourished women than among well nourished women and that protein is one of the factors frequently deficient. The subject would appear to be an important one for further investigation.

For a further discussion of the effects of protein deficiency on both mother and fetus, the reader is referred to a paper on the subject by one of us.[38]

CALCIUM, PHOSPHORUS AND VITAMIN D

As a result of balance studies of Macy,[29] Coons[28b] and more recently Dieckmann,[28c] Oberst and Plass[28d] and others, it is an accepted fact that calcium and phosphorus requirements are considerably increased during pregnancy, if the maternal organism's own stores are to be maintained and fetal needs met. While the exact requirement for calicum is not known, these balance studies indicate that 1.5 Gm. of calcium daily during the latter half of pregnancy should allow sufficient calcium to meet the needs of the fetus and also permit an additional storage of calcium in the mother in preparation for lactation. Swanson and Iob[39] have shown that 65 per cent of the calcium and 64 per cent of the phosphorus of a full term fetus are deposited in the last two months of pregnancy.

The phosphorus requirement is somewhat higher than the calcium requirement and is probably in the neighborhood of 2 Gm. in the latter part of pregnancy. There need be little concern about phosphorus, however, since the protein-rich foods are liberally supplied with it and when protein and calcium needs are cared for phosphorus will usually be supplied in ample amounts.

Since vitamin D appears to aid in the utilization and retention of these two minerals, some additional source of this vitamin, a total of 400 to 800 international units, has been recommended daily. Liu and co-workers[40] and others have found that in the presence of an adequate supply of vitamin D the same degree of calcium retention is maintained on a somewhat lower intake of calcium but that in severe vitamin D depletion high levels of calcium and phosphorus will not maintain the subject in balance. The calcium and phosphorus requirements may well be conditioned by such factors as previous calcium and phosphorus stores, dietary custom and state of vitamin D nutrition. The protein and calcium requirements are also related.[41]

From a practical standpoint it should be remembered that the majority of women today enter pregnancy with low calcium stores and with poor food habits in regard to calcium-rich foods, namely, milk and its products. One quart of milk furnishes 1.2 Gm. of calcium, and only approximately 0.3 Gm. can be obtained from other foods in the usual diet. Without this amount of milk, therefore, it is impossible to meet fully the recommended calcium allowance of pregnancy. Milk must also be depended on for much of the phosphorus needed. Calcium tablets should not be recommended as a milk substitute for the pregnant woman, because considerable dependence also must be placed on milk as a source of other required nutrients. It has already been emphasized that the pregnant woman's need for protein is high and that 1 quart of milk daily supplies a little more than one third of that protein. Whole milk also is an important source of riboflavin, thiamine and vitamin A. In addition the number of calcium pills required to furnish the calcium equivalent of 1 quart of milk is so large that it usually will not be taken and will, if taken, often cause constipation.

Maxwell[42] has reported in considerable detail a number of cases of congenital rickets in the newborn of Chinese women suffering from osteomalacia. Dunham[43] and Rector[44] have also shown that fetal rickets or rickets in the early weeks of life may result from lack of calcium, phosphorus or vitamin D in the prenatal period.

Prenatal studies carried out by our associates and us[45] have shown a relationship between both the protein and the calcium content of the antepartum diet and the osseous development of the infant at birth. This was indicated by the presence or absence of certain osseous centers in roentgenograms of the hand, knee and foot. While both relationships are strong, that with protein appears to be somewhat stronger than that with calcium. A similar relationship has also been shown by these workers between the amount of calcium in the tooth buds as seen in lateral roentgenograms of the head at birth and the protein content of the maternal diet. A somewhat weaker relationship was also shown with the calcium content of the mother's diet. Toverud[46] reported that roentgenograms of newborn infants show great variations in the calcification of the teeth. He stated that this calcification is determined not only by the age of the fetus but also by the nutritional and general physical condition of the mother. Mellanby and Coumoulos,[47] Toverud and Toverud,[48], Burke,[49] Berk[50] and Massler and others[51] have accumulated data which indicate that the structure of the deciduous teeth is related to the prenatal diet. It would appear that unless the maternal diet allows for a liberal storage of calcium and other substances essential to sound tooth structure in the infant's body at birth, tooth structure may be further impaired in the early months of infancy.

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IRON

The iron allowance of 15 mg. recommended for the latter months of pregnancy assumes that the woman enters pregnancy with adequate stores of iron and a normal hemoglobin level. Many women have depleted iron stores and a low hemoglobin level at this time. While balance studies by Coons[52] and Toverud[53] indicate that 15 mg. of iron are sufficient in many cases, Macy and Hunscher[29] considered 20 mg. a safer allowance. In a recent publication Toverud[48] favored 20 mg. of iron during the latter part of pregnancy to assure a positive balance. Various workers have shown that anemia during pregnancy is common both in this country and elsewhere, and it is generally accepted that the hemoglobin level is affected by diet. Garry and Wood[2] rightfully deplored the "lack of detailed information concerning the normal behavior of blood volume, of plasma volume and of the volume of packed red cells during pregnancy." Without such standards red cell counts and hemoglobin values are misleading.

In India a macrocytic hypochromic anemia is common during pregnancy and is a cause of high infant and maternal mortality. Napier and Edwards[54] have reported studies on 529 pregnant women in India. Although there was evidence of widespread secondary anemia, the majority of cases of anemia were also macrocytic in type. This type of anemia was also thought to be of nutritional origin, because of its higher incidence in the lower economic groups. When macrocytic anemia was encountered among the wealthy, a high incidence of vegetarianism resulting in diets of low protein quality and quantity was found. Bethell[55] has also reported this type of anemia, although its incidence in this country is not common. It has been found to yield usually to an increased intake of protein and/or of the vitamin B complex. In India liver therapy is often used. Recently folic acid[56] has been used successfully in treating macrocytic anemia of pregnancy.

One of the major causes of anemia of early infancy may be insufficient iron stores in utero resulting from anemia of the mother during pregnancy.

Iron in the diet comes in relatively small amounts from a number of foods. Food sources of iron include lean meat, liver, egg, potato, fruit (especially dried fruits), vegetables (especially greens and legumes), whole grains or enriched breads and cereals and molasses. If the pregnant woman has hypochromic anemia, medicinal iron should be given routinely in addition to a well balanced diet.

IODINE

In regions where goiter is endemic, iodine should receive especial consideration, since the physiologic changes incident to pregnancy may result in deficiency symptoms in either mother or infant or both.

VITAMINS

Vitamin D has already been discussed in relation to the requirements for calcium and phosphorus. Undoubtedly pregnancy increases the need for all the vitamins, but our actual knowledge in this field is limited, and much investigation is necessary before the requirements for the various vitamins during pregnancy can be stated with any degree of exactitude. Until more definite information is available the Recommended Allowances of the National Research Council seem desirable, although they may be unnecessarily liberal in some instances. It is better to err on the side of liberality in these instances, since there is no indication that a moderate excess is potentially harmful, and considerable harm may result from a deficiency during a period of rapid growth.

Vitamin A.—The vitamin A requirement of pregnancy is not known and the recommended allowance of 6,000 international units represents an arbitrary increase over normal adult requirements. In the average diet about two thirds of the vitamin A value is in the form of carotene; a smaller amount would be needed if all were provided as vitamin A. This amount is readily supplied in the daily diet by whole milk, eggs, butter or fortified oleomargarine and by the inclusion several times each week of a liberal serving of a dark leafy green or deep yellow vegetable. Liver at least once a week improves considerably the vitamin A content of the diet. Since most of the vitamin A is removed when milk is skimmed, it is much better not to substitute skim for whole milk as a means of reducing the caloric value of the diet, but rather to remove less desirable foods when necessary to limit calories. Mineral oil should not be used as a laxative or in salad dressing or other food combinations, especially during pregnancy, since it absorbs both carotene and vitamin A.

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min A content of breast milk is high[79] and the infant's stores at birth are apparently relatively low. The thiamine allowance of 2 mg. represents only a slight increase over the amount recommended for pregnancy. The transfer of thiamine from the mother to breast milk is relatively poor but the maternal diet has been shown to be the principal determinant of the amount so transferred.[80] The recommendations of 3 mg. of riboflavin and 20 mg. of nicotinic acid are empiric. Macy and others[81] have shown that the concentrations of both of these vitamins are higher in the breast milk of women on diets of high composition than in the milk of women on self-chosen diets. The recommended allowance of 150 mg. of ascorbic acid rests on a somewhat sounder foundation.[82] The ascorbic acid content of human milk is much higher than that of cow's milk.[83] The allowance of 400 to 800 international units of vitamin D is the same as for pregnancy.

Those interested in more detailed information on the nutritional value of breast milk are referred to the recent papers by Macy and her co-workers.[84]

To insure an optimum diet throughout lactation each woman should be advised during late pregnancy and in the early postpartum period in regard to the changes which she should make in her diet for the period of nursing. An additional pint of milk—i. e., a total of 1½ quarts daily—furnishes the additional protein, calcium, phosphorus, riboflavin and thiamine suggested, as well as some of the additional vitamin A and calories. Liberal amounts of vegetables and fruits which should include the amount of citrus fruit recommended for pregnancy will cover the ascorbic acid allowance. Additional bread, cereals, potato and other foods of the woman's own choice usually must be included, because energy requirements are high during this period, but the extent of use of these foods must be varied in accordance with individual needs.

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Deaths From Battle and Disease.—In World War II, 13 men died in battle for every man who died from disease. *In the Spanish-American War, the ratio* was reversed, 13 men dying from disease for every man dying in battle. In the Civil War, 71 men per 1,000 troops died from disease each year. If the same rate had prevailed during World War II, the Army would have *lost more than 1,600,000 men by* death from disease instead of the number actually lost—13,700. —*Bulletin of the U.S. Army Medical Department*, April 1948.

PHYSICAL TREATMENT OF ARTHRITIS

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A difficult problem for most physicians is what to do for their patients with chronic arthritis. Unfortunately as yet there is no specific therapy; however, the physical methods are available and when properly and consistently used can be the most important single factor in the treatment of these patients. To be sure, since we are physicians we consider all the various medications, injections, diet, psychotherapy, surgery, etc., *that are indicated, but I believe the statement can* be made that, if one is deprived of everything else, one *can depend on the physical agents to* improve these patients both subjectively and objectively.

These measures to be most effective must be used frequently—that is, every day or even several times during the day. This means that the patient should be instructed on what to do in his home and calls for specific directions and methods that are relatively convenient, safe and inexpensive. I should like to stress these home treatments and give a few suggestions of what can be done. *Nothing* is better than the triad of heat, massage and exercise.

HEAT

Heat in any form increases the circulation to the part, relaxes the tissues and relieves pain. That cer*tainly justifies its use. Most* forms of heat are applied at least once a day, and two or three times a day are even better. *Many* methods of applying heat are available. The infra-red lamps are perhaps the ones most frequently employed. It is well to remember that the bulb type or the incandescent filament lamp penetrates to a greater depth than the so-called nonluminous form, which is made up of a solid iron rod or plate.

The color of the glass of the bulb type of lamp is a *point often* questioned. The glass from any of these lamps absorbs a certain percentage of the energy and a certain amount is lost by reflection. *By* physical laws a colored glass is likely to absorb more radiation than a clear glass, but this loss of energy is more theoretical than practical. The only benefit to be derived from the colored bulb is that it produces less glare than the *clear bulb. These* remarks are made since too often a physician buys a red-colored bulb with the hope that he *is securing a larger source of infra-red rays.*

Another factor of practical importance is the length of time that the joint or joints should be exposed to infra-red radiation. It has been found that the maximal elevation of the temperature of the skin is not reached until twenty minutes has elapsed, and the temperature *does not level off until after about thirty* minutes. This *indicates that a treatment should be at least thirty* minutes to secure the best physiological benefit. The practice of using a hand lamp for *five to ten minutes* is a waste of time. Thus in prescribing heat treatments for the home with an infra-red lamp it is well to consider the comfort and convenience of the patient. Separate infra-red bulbs are often purchased by patients *for use in their reading lamp or whatever they* have at home. This changing back and forth is troublesome

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and soon discourages even the most faithful. It is more practical to recommend a lamp that is mounted on a stand, either the floor model or the table model, since they are more likely to be used for the necessary time. Dr. Krusen has suggested the use of a cup-shaped polished reflector similar to those used in photography with photo flash bulbs. This reflector is attached by means of a ball and socket joint to a small clamp which may be fastened to the back of a chair or to the bed. One may use a 250 watt "Mazda" Cx bulb or a 200 watt carbon filament bulb in this lamp, and the entire outfit will not cost much more than $5 or $6.

A more elaborate and expensive means of applying infra-red radiation is by the baker, which is merely an oven-like affair in which four to eight incandescent bulbs are suspended. This is most useful if both knees or the lower extremities are to be treated. It is also useful for the back. These bakers may be secured from the War Surplus Administration, but this usually requires influence and an unlimited amount of patience. The Council of Physical Medicine of the American Medical Association will supply the details on making such a baker.

Another simple and inexpensive means of applying heat to joints is by the use of paraffin. All that is required is eight to ten pounds (3.6 to 4.5 Kg.) of paraffin such as is used to seal jelly or fruit jars and a container to heat it. A double boiler is more convenient and safer, since this prevents setting the paraffin on fire. The wax is melted and then removed from the fire, and when a thin film forms on the surface it is at the right temperature for the patient to use. If it is for the hands, he dips them in the paraffin and then removes them when the paraffin solidifies. This is repeated eight to ten times until a glove of about one fourth inch (0.64 cm.) or so has formed. The hands can then be wrapped in a bath towel for fifteen or twenty minutes, after which the paraffin is peeled off; it can be used over and over again. For joints other than the hands, a paint brush may be employed and the paraffin painted on.

When numerous joints are involved, as in rheumatoid arthritis, the full tub bath can be recommended, since it heats all the joints and has the additional advantage that, while the patient is in the tub, he can be urged to exercise the affected joints. The temperature of the water should not exceed 100 F., and the treatment should last about twenty minutes.

MASSAGE

After the use of heat in any of these forms, massage should follow. Physicians neglect massage because they know so little about this measure and more often than not have never been told or shown how to give a massage.

Massage is capable of producing definite physiologic effects which are most beneficial to the arthritic patient. The ideal would be to have a physical therapeutist give the massage daily, but this would be an expense which but few arthritic patients could tolerate; therefore some member of the family should be instructed in the method of giving a massage. In most instances the amateur masseuse can do a reasonably good job. If the physician cannot give instructions for massage he owes it to his patient to see that a physical therapeutist shows the methods to someone in the family. The technic of giving a massage is given in the "Handbook of Physical Medicine,"[1] the book that has been prepared by the American Medical Association for the general practitioner.

EXERCISE

After the heat has been applied and the massage has been given, the patient is ready for the exercises. This is one of the most valuable forms of physical therapy, particularly for the patient with the rheumatoid arthritis. Nothing is more pathetic than the plight of a patient with rheumatoid arthritis who has deformities and contractures which in many instances might have been prevented. It is believed that if such a patient will go through the full range of motion once each day for all the joints involved, he can be reasonably assured that he will not be a cripple. In the early stages of the disease the exercise are relatively simple and cause little pain, but if the patient is not properly instructed, he will delay movement of joints in hope that the pain will disappear. In too many cases it is then too late, for fibrosis, adhesions and even bony ankylosis may have occurred. In my opinion irreparable damage is done by advising the patient to go to bed and remain there until all swelling or pain has disappeared. This may take thirty or forty years. Immobilization results in weakness and loss of muscular tone and leads to atrophy and eventually deformities. On the other hand, a patient with rheumatoid arthritis is warned against too much exercise. Often such a patient exercises a joint as much as possible, hoping thereby to prevent stiffness. This also is incorrect.

During the relatively acute stage the exercises are done slowly and increased according to the tolerance of the patient. It is well to remember that certain muscle groups, such as the flexors and adductors lead to deformities; therefore exercises for their antagonists —namely, the extensors and abductors—should be stressed. In the beginning merely going through one or two movements for each joint will be sufficient; later this can be increased to several times during each day and, finally, by weight-bearing exercises. "Proper exercises never increase the activity of an arthritic process."

Exercise for the joints, although most important, is monotonous. There is no substitute for active movement of each individual joint; however, additional exercises may be suggested in the form of occupational therapy, which makes the patient forget the exercise in an effort to accomplish a task. This not only supplies the physical activity but has a psychologic incentive as well. By the proper methods this form of therapy can be directed to insure exercises for any joints desired. Occupational therapy is not confined to the hospital but should be used in the home, since many simple devices are available that can be suited to the interests of each patient.

A HOSPITAL DEPARTMENT OF PHYSICAL MEDICINE

All the physical measures that I have mentioned thus far are most effective and practical and relatively inexpensive and should be recommended for use in the home. There are other physical agents that are more complicated and costly and require more technical experience. This leads me to a subject that I would like to bring to your attention; namely, a department of physical medicine in a hospital. To the physicians in the larger cities and in the larger hospitals, the department of physical medicine is considered a necessity and is widely used in treating the arthritic patients; however, in the smaller communities it is rare to find a department of physical medicine. This also applies to the smaller hospitals in the larger cities. If such a department has proved to be helpful and worth while in larger hospitals, why should not its services be equally important in the other institutions? Today more and more physicians have equipped their offices with physical therapeutic apparatus, but few general practitioners have either the need for an extensive outlay or the time necessary to administer all of these treatments properly. The busy practitioner cannot afford to devote approximately an hour of his time for each arthritic patient, which may be necessary for such therapy. The solution to the problem is a department of physical medicine in the local hospital where the personnel, space and equipment may be made available. It is expected that the superintendent or administrators of the hospital will find objections for any additions or changes, but, if the demands are made, ways and means can certainly be found. The Council of Physical Medicine of the American Medical Association can be helpful in supplying plans for a small department and in telling about the services and means of securing physical therapists. The department in the hospital will provide the practitioner with facilities that are adequate and ethical. Unfortunately, too often the busy physician is forced to send his patient to masseurs, gymnasts or even members of various cults for physical therapy because the hospital in his community does not fulfil his needs.

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[1] Handbook of Physical Medicine, Chicago, American Medical Association, 1945.

Of course a department of physical medicine in a hospital would be utilized for the treatment of all diseases and disorders. However, it is the patient with chronic arthritis who receives the greatest benefit and who keeps the department busy. The assistance from such a department and the all-important physical treatments which are prescribed in the home will secure results that assure the greatest satisfaction to both the physician and the patient with arthritis.

PHYSICAL MEDICINE IN THE TREATMENT OF THE AGED

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The aging person is faced with the possibility of gradual physical and mental deterioration. On the physical side, changes occur in the elastic tissues of the body, such as those found in the blood vessels, as well as in the synovial membranes of joints and the skin. These changes produce physiologic alterations associated with a decrease in the rate of tissue exchange and in the nutrition of the affected part. Many of the mental conditions result from vascular changes in the cerebral vessels which affect the circulation of the brain. Diminishing acuity of vision and hearing also are common findings in the aged.

In discussing the subject of physical medicine in these persons one has the valued presentations of both Dr. Krusen[1] in *Geriatrics* and Dr. Kovacs[2] in his chapter in Stieglitz's book, "Geriatric Medicine"; they have presented a careful outline of the physical medicine procedures available, with reference to their particular application in geriatric patients. I wish to approach the problem more directly from the standpoint of the patient, with a consideration of some medical and surgical conditions which commonly afflict patients in the older age groups and to indicate briefly how physical medicine can aid the patient with these conditions.

In the data on conditions which are prevalent in the older age group there are differences, depending on whether one considers the mortality, prevalence or disability statistics. At the head of the causes of death is heart disease with associated vascular conditions, and in second place comes cancer. If prevalence is taken as the guide, then the cardiovascular ailments come first and rheumatic conditions come second. When chronic disability is the test, then nervous and mental diseases lead with cardiovascular ailments and rheumatic conditions in second and third place, respectively. Physical medicine is not the only form of therapy which is applicable in these conditions, and any comments which I make about physical therapy must be coordinated in the whole program. Only when the physician brings into play all forms of therapy will the patient obtain the maximum benefit from his medical care.

NERVOUS AND MENTAL DISEASES

The melancholias frequently occur in aging patients, particularly during or following the climacteric. For these patients electric shock therapy is widely applied. I do not wish to detail the specific technics in this field, but only to point out that this method of treatment is the application of a physical agent.

For the patients with senile psychoses or psychoses associated with arteriosclerosis the simple forms of heat in definite moderation may be useful. The very simplest forms of heat which can be regulated more by the temperature of the room than any local application may be all that is safe for these patients. Such exercise as the patient's condition will allow is of value in preventing even a more rapid deterioration. The big contribution of physical medicine is the use of occupational therapy, the teaching of the patient to do some particular piece of work instead of just letting him sit and gradually deteriorate. Occupational therapy will not stop the progress of aging in these patients, but the later years of their lives will be much more happy years if the occupational therapeutist provides them some simple work activity. It must be within their mental capacity and not sufficiently exhausting to tire them physically.

Dinkin[3] has recently outlined a plan for the study and treatment of the patient with hemiplegia. Motor function tests, which indicate the power available in the different muscle groups, as well as activity tests which determine how well the patient uses the remaining power, are necessary. The physical measures used are dependent on how much the patient is able to do. He recommended the use of passive exercises; the physical therapeutist puts the extremities through the maximum range of motion possible once or twice a day to prevent contractures and to increase the confidence of the patient. One should start this early and not wait for the development of contractures or other limitations. Simple pulley exercises performed by the patient are useful for treatment of limited shoulder motion. They aid in restoring confidence because the patient uses his good arm to move the paralyzed arm.

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Read in a Panel Discussion o [illegible] l Practice before the meeting of the Sectio [illegible] e Ninety-Sixth Annual Session of the [illegible] Atlantic City, N. J., June 12, 1947.

[1] Krusen, F. H., and Leden, U. M.: Some Applications of Physical Medicine in Geriatrics, Geriatrics **1**: 409 (Nov.-Dec.) 1946.

[2] Kovacs, R.: *Principles of Physical Therapy as Applied to the Aged,* in Stieglitz, E. J.: Geriatric Medicine, Philadelphia, W. B. Saunders Company, 1943, chap. 7.

[3] Dinkin, H.: The Evaluation of Disability and Treatment in Hemiplegia, Arch. Phys. Med. **28**: 263 (May) 1947.

Daily galvanic or faradic stimulation of flaccid muscles to maintain tone and weight is suggested. Massage may be of some aid, but it will not put power into a paralyzed muscle. Important are muscle reeducation and walking exercises.

Occupational therapy is important for the development of the functional activity, projects being used which call for the use of the affected hand, arm or leg. They should include the technics of dressing, eating, standing, walking, etc., all of which are important in the activity program of the hemiplegic patient. Dinkin stressed the great value of starting early, having a definite plan, the building of morale and a persistence in the work as important factors leading to success in caring for the hemiplegic patient.

The patients with paralysis agitans or the Parkinson syndrome need to be treated with a definite program of activity. Exercise is important. However, it must be moderate to avoid fatigue. Many of these patients can perform fine movements when they are unable to perform large sustained movement in any one direction. Massage and relaxing baths have been recommended in this group, but they are generally found to be of only temporary aid and the disease process seems to progress in its usual form. It has been my good fortune to follow a number of these patients for a period of years, with the use of the natural carbon dioxide bath. Inasmuch as many among these patients have a vascular disturbance, some improvement has been noted in this program. However, over a period of years, I have not been able to demonstrate that it has prolonged life. It has helped them to live more comfortably in their declining years if this bathing program is followed regularly.

CARDIOVASCULAR AILMENTS

Every physician is familiar with the many patients in the older age groups who suffer from progressive coronary disease, hypertension and, to some degree, myocardial failure resulting from these two conditions. Arteriosclerosis and other vascular conditions may limit the supply of blood available to an organ or extremity. In the past physical medicine has not been considered to be an important arm of therapy in the heart conditions, although it has received considerable attention for the patient with peripheral vascular disease. Some publications have stressed recently the importance of a physical program of treatment, not to provide a complete cure but for aiding the cardiac patient so that he could live a more comfortable and, in some cases, a more active life. The program for this group might well be divided into two parts.

First, there is the program which can be used at home, where many patients who are limited in their activity because of decreased cardiac reserve may well benefit from simple passive and mild active exercise, as well as from the use of massage during their period of inactivity. The intelligent application of these physical measures is helpful in preventing muscle deterioration and in keeping the patient in better physical condition to take up increased activity as his cardiac condition improves. The extent to which this program may prevent the development of peripheral thrombosis and subsequent pulmonary emboli can be determined only after a long period of study with corresponding control groups. There should be a happy medium between the long continued bed rest for the patient with coronary occlusion and infarction as compared with too short a period for these patients. Physical medicine can be of value to the internist in his program of handling this group of patients.

The second phase of the physical medicine program as applied to the patient with heart disease has been built around the spa, where the cardiac patient follows a program of bathing in carbon dioxide mineral waters for a period of two to four weeks, once or twice yearly. Comstock and Stroud[4] have discussed this program, as have Lambert,[5] Leaman[6] and McClellan.[7] There is evidence to indicate that the absorption of carbon dioxide through the skin from the mineral water bath produces a direct influence on the smaller peripheral vessels. It is accumulated in the body and an increased output through the lungs of 10 to 25 per cent occurs. The clinical studies reported indicate that these patients have less anginal pain and are able to exercise to a greater degree without evident discomfort than they could before.

In peripheral vascular disease, particularly associated with arteriosclerosis, numbness, tingling and the usual symptoms resulting from diminished circulation in the extremities are reported. The physician may say, "Well, apply some heat to the extremities." Without careful specification of the type and amount, the patient overdoes the application, resulting at times in severe burns. Heat is of value, but only in distinct moderation and applied in such a manner that there is no possibility of raising the temperature of the extremity beyond the temperature of the body. It is best applied in a heat cradle or baker with a thermostatic control. Gentle applications of infra-red heat are useful but again must be carefully checked not to overheat an extremity. The use of hot packs, mud packs, diathermy and even baths above a temperature of 96 F. may be detrimental. There is value for these patients in heat, but it must be moderate. It also is important that the form of heat used shall be available for considerable periods of time.

Contrast baths—namely, the exposure of the extremity to hot water and then to cold water—have been suggested by some writers, but Wright,[8] in his recent review of the problem, expressed the opinion that this procedure is dangerous for these patients. I would agree that they do not respond well to sudden changes of temperature, and in the ideal treatment one seeks moderation in temperatures as well as activity, avoiding the extremes of either heat or cold.

Other forms of physical medicine have been applied. There have been considerable differences of opinion in the results obtained from the suction pressure apparatus, from the apparatus which permits intermittent venous occlusion and from many of the electrical procedures. There are some who feel that properly applied diathermy to the lower part of the back may be helpful in releasing some of the spasm associated with the limited circulation of the lower extremities. With Dorrance,[9] I was able to study the amplitude of pulsation in a considerable number of patients before and after the carbon dioxide bath. In some we found a definite increase in the amplitude of pulsation. This was less marked in the lower extremities than in the upper extremities. It appeared that in many of these cases organic disease or arteriosclerosis is associated with spasm in the peripheral vessels of the lower extremity. The use of the bath brings about some decrease in spasm, allowing for an increased pulse amplitude. If the changes in the patient were primarily organic, then we found little or no change in the pulse amplitude. We concluded that the response of the patient to physical measures such as the bath and others of a similar type will largely depend on what proportion of the limitation is due to the spasm and what to organic arteriosclerosis. When the latter predominates, then one can expect little change in the amount of blood passing through the occluded vessels. These measures help to make use of the available channels to the best advantage and should be carefully selected and applied in this group of patients.

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[4] Comstock, C. R., and Stroud, W. D.; in Stroud, W. D.: Diagnosis and Treatment of Cardiovascular Disease, Philadelphia, F. A. Davis Company, 1940, chap. 42.

[5] Lambert, A.: The Action of the Autonomic Nervous System as an Explanation for the Therapeutic Value of the Carbonic Acid Baths in Degenerative Cardiac Diseases, New York State J. of Med. **35**:147 (Feb. 15) 1935.

[6] Leaman, W. G., Jr.: The Value of Physical Therapy in Management of the Cardiac Patient. Arch. Phys. Therapy **23**:5 (Jan.) 1942.

[7] McClellan, W. S.: The Place of Carbon Dioxide Baths in the Treatment of Diseases of the Circulation, Internat. Clin. **1**:199 (March) 1937.

[8] Wright, I. S.: Arteriosclerosis, in Stieglitz, E. J.: Geriatric Medicine, Philadelphia, W. B. Saunders Company, 1943, chap. 30.

[9] Dorrance, S., and McClellan, W. S.: Effect of Natural Carbonated Baths on Rate and Amplitude of Pulse and Blood Pressure, Arch. Phys. Therapy **21**:133 (March) 1940.

The program of treatment should provide for the whole day. It is of little value to apply gentle heat to an extremity of a patient in the clinic and then have him go by bus or streetcar through the chilly day to his home, as the exposure to the cold will many times more than counteract the benefit obtained from the treatment.

RHEUMATIC CONDITIONS

Physical medicine has probably had its widest application in the treatment of arthritis and related conditions. Most of these patients seek some form of baths or other physical treatment sometime in the course of their disease. In the aging patient, osteoarthritis is more common that rheumatoid arthritis, although no age group is free from rheumatoid arthritis. Gout will manifest itself in many age groups, and, while it may not commonly start in the older patients, it will cause disability from its persistence over many decades.

In the treatment of arthropathies, particularly of the rheumatoid type, tested measures include, first and foremost, rest, particularly in the acute phases. The application of heat from various sources is soothing, but in the acute swollen joints it often will aggravate and will increase the discomfort. It may properly be applied during the convalescent period when the residual swelling and exudate will produce limitation of motion. Important also is the application of gentle massage, not to the inflamed joint, but to the muscles acting about the joint. This is of particular value in helping to maintain good muscle condition. Exercise should be started early, beginning with the passive movement through the possible range of motion once or twice daily in order to prevent limitation and stiffening. It may be extended as the patient's condition improves to a more vigorous, active program in this field, the goal in the application of physical measures being to avoid overtreatment but to prevent muscle deterioration and contracture. With properly applied physical measures, prevention must be stressed because it is easier to prevent than to correct a troublesome, crippling condition.

Patients with osteoarthritis will tolerate heat in greater amounts with the use of heat cabinets or warm baths. They also tolerate sedative massage and rhythmic exercise, and in some even the contrast bath may be used. Most of the patients with osteoarthritis can tolerate a more vigorous program of treatment than can the patients with rheumatoid arthritis. However, the intensity of the treatment would largely depend upon the general condition of the patient, and a careful observation of the patient's response to the treatment is important in checking his progress. If the patient suffers additional pain beyond an hour following the treatment, or if there is evidence of increased strain on the heart as evidenced by faster, rapid pulse rate, then the program must be modified to meet the needs of the patient.

Physical measures recommended for patients with gout include both hot and cold applications to the acutely tender joint. Observation of a considerable number of patients indicates that these applications give at least temporary relief; in some patients they appear to shorten the period of disability. They do not, apparently, modify the course of the disease, but their use is justified because they give relief.

In other forms of rheumatic disorders, such as neuritis, fibrositis and myositis, physical medicine can do a real job. It must be specifically applied, and time does not permit the outline of detailed physical measures for each condition. The general principles already outlined apply here.

TRAUMATIC CONDITIONS

The elderly person is subject to falls and injuries, with resulting fractures and other traumatic conditions. Physical measures can give relief and can shorten periods of disability. It is important to keep the portions of the body which are not affected in as good condition as possible with the use of corrective physical exercises and movements which will prevent deterioration and loss of muscle power in the good extremity or in the remainder of the body as a whole. When properly applied they will keep the patient in better condition to become active after the fracture or injury is healed. Again, as in the other sections of this discussion, the early application of heat in the region of the fracture is of value but should be in moderation. Diathermy is not indicated, as there is some evidence that it may delay the healing of fractures. Gentle movement as early as possible in the hands of an experienced therapeutist is of value. The amount and the extent of this movement and exercise must, of course, be indicated by the physician in charge, as he is familiar with the disability. The program for these patients carries on through the convalescent period, during which both physical therapy and occupational therapy can play a real part in aiding a patient in his return to a more normal natural period of activity. This is true for the older patient as for those in the active working period of life. In the older age groups some consider that treatment work of this type is not productive because of the limited years of life expectation ahead. It is of value in reducing disability and discomfort.

GENITOURINARY CONDITIONS

Outside of the use of electrosurgery in the field of prostatic operations, physical medicine has not been widely applied. Many physicians have recommended for prostatic congestion and pelvic inflammatory disorders the use of the hip bath, known as the "sitz" type of bath. This will give considerable relaxation but in no way is a substitute for a careful study, diagnosis and treatment of the medical condition. Local fever therapy does not seem to be stressed as greatly today as a decade or two ago. The use of diathermy will give relief in many pelvic conditions, but it must be used with caution wherever infection is present.

SUMMARY

There are a number of questions which physicians may properly raise and to which attention should be given in view of the recommendations that I have discussed. The first question is how can the general practitioner provide these measures. The physician sees the large physical therapy department with its many machines and appliances and feels that it is beyond his ability to provide this service. A more careful study of physical medicine stresses the need for the development of simple home procedures such as can properly be applied by the patient alone, or by someone in the patient's family. This eliminates the tiresome trip to the clinic and even the occupancy of a hospital bed, and offers the opportunity for a more frequent application of the procedures. In any place where the patient has electric current or a water supply or some method of heating the water, many of the applications which I have mentioned can be used. In many a home there is no bathtub available. However, when it is present, the use of baths at various temperatures can be prescribed, and they have a real soothing effect for many of the conditions producing discomfort in the aging patient.

One hears much about rehabilitation today. For the aged patient, rehabilitation means making life more comfortable for the patient, making him feel that he is needed and wanted by society. Physical medicine, with its associated programs of physical and occupational therapy, and corrective physical exercises can play a great part for this group of patients in helping them the better to carry on through the declining period of life.

One phase of physical medicine relating to the aged patient should be stressed. I have to this point been discussing definite physical diseases and ailments. Physical medicine has a part in the preventive field among the aged. A proper program of exercise, of massage, of the use of baths such as provided in the spas, is of value in keeping the aging patient in good condition, making unnecessary, perhaps, some of the specific application of physical medicine for medical conditions. One form of physical medicine which is neglected is the field of exercise, and in particular proper breathing exercises. Due to the inactivity of the elderly patient, he breathes in a very shallow manner. The respiratory exchange is at a minimum. There may be a deficiency of oxygen due to this failure to carry out the breathing exercise properly. A regular program of deep breathing will provide the patient with an increased amount of oxygen and will improve the general condition of the patient.

One question which arises in this group is how far to permit exercise. In the aged should one not limit activity? This can be answered only by a careful consideration of the individual patient. The aged King of Sweden has played tennis until recently. Others who have not attempted regular exercise through most of their middle life will find this too strenuous. Golf has, of course, had its place. Many players in their seventies and even in the eighties are playing golf today and derive a great deal of benefit from it. However, telling a patient at 70 or 75 to start playing golf is, I believe, a mistake. In other words, no one can determine for a patient the amount of exercise that can be allowed, but it must be determined for each person on the basis of his physical and mental capacity.

One final word in the application of physical medicine in the aging patient is the requirement and recommendation of dosage. This, I believe, should be stressed and if this procedure is followed carefully, through moderation and careful prescription of the physical medicine procedures some of the damages will be avoided which are unfortunately mentioned as a result of use of physical medicine.

PHYSICAL MEDICINE AND THE LAME BACK

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The main object of physical medicine in instances of lame back is to restore the normal physiology of the spine. It must be remembered that backache is only a symptom of some underlying postural difficulty, trauma or diseased condition which produces a train of events resulting in pain low in the back. In addition to this, there may be pain in some of the nerves of the lumbar or sacral plexus, the sciatic nerve being most frequently affected.

The integrity of a joint depends on a normal alinement of the articular surfaces, strong ligaments and a normal musculature which moves and aids in supporting that joint. When disease, injury or postural abnormalities occur, this whole mechanism is thrown out of gear. The muscles which support and activate the joints lose tone and strength, with the result that additional burdens of stress and strain are thrown on the supporting structures and cause pain. If the pain continues, atrophy and spasm of the muscles increase and the disturbance is prolonged.

Recurrent attacks of backache are likely to occur even after slight injuries or certain minor movements *if no attempt has been made to restore normal spinal* function or the normal physiologic curves of each individual spinal division or segment. Prolonged distortion of these curves is too likely to be the fundamental cause of the recurrent, chronic lame back.

In the acutely lame back, relief of pain by rest in bed, plus sedatives, is indicated. The bed should be firm and the mattress flat. If the bed sags, a board 20 inches (51 cm.) shorter than the spring should be placed under the mattress. The board must not be used if it makes the patient more uncomfortable. A great deal of pain is due to muscle spasm, which can be alleviated by sedatives, the type and the frequency of the dose depending on the amount of pain and the relief obtained. Sometimes constant bed therapy is irksome. In that case, the patient should be allowed to sit up, out of bed, for short periods. This often decreases the discomfort.

HEAT

Hot packs applied for fifteen or twenty minutes twice a day are most helpful. Baking with a heat lamp for the same length of time also gives relief, but prolonged heating is not curative, as it increases congestion. The object of the heat is to relieve congestion; it does not decrease atrophy or heal injured or diseased tissue.

MASSAGE

In acute back trouble, massage must be used with discretion; it should be in the form of gentle effleurage. Too many backs are made worse by plowing and heavy massage. The object of the massage should be

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to promote circulation and the relaxation of muscle spasm. Some patients do not tolerate massage at all; it must not be used in such persons. The well trained physical therapeutist should be able to recognize such idiosyncracies. When the patient is able to be up, his back should be protected by a well fitted corset or some adequate support.

EXERCISES

When the pain and muscle spasm have subsided, special exercises should be prescribed in order to help restore function and maintain the physiologic curves of the spine. The principal supporting muscles of the lower part of the back are the large gluteal and abdominal muscles. After a severe episode, the first course of exercises should be devoted to increasing the tone of these two groups of muscles; one begins by instructing the patient, while lying on his back, to contract his glutei maximi. This should be done five times every half hour throughout the day and gradually increased until it is done one to two hundred times daily. This maneuver must be slow, firm and steady. Short, jerky movements will not develop muscle tone and may cause pain. If there is no recurrence of pain, the patient is next instructed to raise his head and shoulders a short distance from the bed, when in a supine position. He should do this five times every hour, holding this position for two or three seconds at a time. This exercise should be gradually increased until it is done one hundred times through the day. As the muscles show firm tone and good power, fifty exercises morning and night should be performed. When one gluteal muscle is smaller than its fellow, the patient lies on his face with a pillow under his abdomen and hyperextends his thigh on the atrophied side against gravity. This should be done a few times every hour, later on fifty being done twice daily.

If the iliotibial bands and anterior fascia lata are contracted, the lateral fascia is stretched by leaning sideways in a doorway or with a hand on a bureau, so that the body and affected leg form an arc with the bow toward the affected hip. Usually five to fifteen stretches, twice daily, will stretch out the iliotibial bands and help to relax a restricted straight leg raising. Later the anterior contracture is stretched by pulling on the ankle so as to increase knee flexion. The thigh must be held in line with the body. Stretching of fascia lata must not be done in the presence of sciatic pain, because to do so will only aggravate the pain. Forward bending exercises while standing are likely to produce pain and must not be given until all the contractures have disappeared.

Many patients who have pain low in the back have short heel cords and short hamstrings. Short heel cords are often a factor in producing pain in the back in those who stand for long hours in a forward bent position. This condition may be relieved by standing with the ball of the foot on a book or board and let the weight of the body do the stretching. The knees must be completely extended in order to get the full benefit of the stretch. The shortened hamstrings can be stretched by the patient, who is instructed to stand on one leg and to place the heel of the other, knee extended, on a low chair or stool. He then bends forward slowly as far as he can and remains in that position for at least three seconds, repeating several times (ten to twenty) two or three times a day. This is persisted in until he is able to reach the floor with his fingers without flexing his knees. When all contractures of the hamstrings, calf muscles, and fascial structures have been relieved, and the muscles which protect and support the back have normal tone, contour and strength, exercises to correct faulty posture should be prescribed and continued until normal posture can be maintained without conscious effort.

Occasionally one sees a type of stiff back in which it is not possible to reverse the lumbar curve by forward bending. This condition is difficult to overcome, but it can be accomplished by prolonged protection and physical measures devoted to stretching the lumbar fascia and muscles in the following manner: The patient is instructed to lean over several times a day, first in a chair and later in the standing position, as far as possible, remaining there for at least one minute without straining and as relaxed as possible. One other exercise is also helpful, and that is done in the supine position. The patient flexes the knees and thighs and grasps his knees with his hands and rolls them toward his chin, holding the position for several seconds, ten or fifteen times at least twice daily.

When a spine has been operated on to relieve pain in the back, exercises to restore muscle function will shorten the convalescent period. It must be borne in mind that operations involving joints are a form of trauma and that muscle atrophy occurs afterward.

SUMMARY

Heat, massage, and proper exercises will result in the cure of many lame backs. Heat and massage are helpful but do not restore power. Exercises to develop musculature will restore power and function. Exercises to correct faulty posture, secondary to the lame back, will minimize the severity of later attacks and often give permanent results.

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PHYSICAL TREATMENT OF COMMON DERMATOLOGIC LESIONS

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All branches of medicine have made tremendous advances during the past two decades. Many of the advances in dermatologic therapy have been made in the field of physical medicine. New technics have been devised, old ones have been improved and new physical agents have been introduced into the armamentarium of the dermatologist.

To appreciate the importance of physical therapy in dermatology, one has only to peruse the agents employed in the treatment of diseases of the skin. Among these agents are ionizing radiations, especially roentgen rays and radium. Agents which emit alpha rays, such as radon in ointments and gases, thorium X in solutions and ointments and polonium in solutions, have been used to a limited extent. Encouraging results are being reported with the use of radioactive isotopes in the treatment of systemic diseases having cutaneous manifestations such as mycosis fungoides, Kaposi's sarcoma, leukemia cutis, Hodgkin's disease and polycythemia vera. Perhaps the literature of the near future will have recorded the successful use of radioactive isotopes for such diseases as exfoliative dermatitis, chronic universal psoriasis and the large group of generalized

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recurrent and chronic papular erythrodermias, subacute lupus erythematosus, pemphigus, dermatitis herpetiformis, multiple primary and metastatic cutaneous malignancies and perhaps even xeroderma pigmentosum. Even the severe generalized fungous diseases such as blastomycosis and actinomycosis might respond to the internal administration of radioactive isotopes. The future of atomic energy for the study and treatment of dermatologic conditions is full of possibilities.

ROENTGEN RAYS AND RADIUM

The use of roentgen rays and radium in the treatment of skin disease is no longer an experiment. There are over eighty skin diseases which respond well to treatment with roentgen rays or radium. Amongst this group may be mentioned angioma, acne vulgaris, actinomycosis, blastomycosis, granuloma coccidiodes, dermatophytosis, favus, tinea capitis, onychomycosis, mycosis fungoides, leukemia cutis, Hodgkin's disease, Kaposi's sarcoma, epitheliomas, some cases of melanoma, neurodermatitis, psoriasis, lichen planus, verrucae, furunculosis, carbunculosis, keratoses, keloids, hyperhidrosis and tuberculodermas including scrofuloderma and tuberculous adenitis. The most effective therapeutic agent to control the present epidemic of ringworm of the scalp has been the application of temporary epilating doses of roentgen rays to the entire scalp.[1]

ULTRAVIOLET RAYS

Ultraviolet radiations are not as extensively used in dermatology as in former years, but they are used more critically and in a more precise manner. The average dermatologist employs in his office or clinic an air-cooled and a water-cooled hot quartz mercury arc lamp and a "cold quartz" type of lamp. He also employs black light or "Wood's light" for diagnostic purposes. In fact, were it not for this type of filtered ultraviolet ray generator, it would have been impossible to begin to control the nationwide epidemic of ringworm of the scalp raging among the school children of this country. With "Wood's light"[2] it has been possible to detect and isolate those afflicted with the disease who show no clinical manifestations of it.

Ultraviolet rays[3] have been found useful in a large number of diseases of the skin, the most important of which are acne vulgaris, dermatophytosis, neurodermatitis, eczema in infants, eczema seborrheicum, furunculosis and folliculitis, pityriasis rosea, parapsoriasis, essential pruritus, psoriasis, tuberculodermas, including lupus vulgaris, scrofuloderma, erythema induratum and orificial tuberculosis, and some slowly healing ulcers and wounds. The Goeckerman treatment for psoriasis, which consists of the application of crude coal tar ointment prior to exposure to ultraviolet rays, has been found particularly efficacious for this stubborn and recalcitrant disease.

The bactericidal rays of the cold quartz type generator are useful in the treatment of some infected ulcers and wounds and may cause quicker involution of impetigo contagiosa, pemphigus neonatorum and other pyodermas. Because "cold quartz" ultraviolet rays cause exfoliation, they are useful in the treatment of pityriasis rosea, tinea versicolor and pits and scars following acne vulgaris and smallpox.

Before leaving the subject of ultraviolet rays, it is necessary to emphasize that they should never be used in the treatment of lupus erythematosus because after an intense reaction some cases of discoid lupus erythematosus may become generalized and terminate fatally. Germicidal ultraviolet ray lamps have not been used as yet to any extent by American dermatologists for the treatment of diseases of the skin. At this time I know of no evidence that would support the contention that short wave length ultraviolet rays would prevent pemphigus neonatorum, impetigo contagiosa and other pyodermas.

HIGH FREQUENCY CURRENTS

High frequency currents[4] are used for medical and surgical purposes. Fever therapy has been used for the successful treatment of neurosyphilis and for some cases of generalized chronic and recalcitrant dermatosis. High frequency currents are used mostly in dermatology for destructive purposes for such lesions as keratoses, leukoplakia, nevi, papillomas, epitheliomas, Bowen's disease, melanomas, fibromas, granuloma pyogenicum, cutaneous sarcoids, small lesions of lupus vulgaris and lupus erythematosus, verrucae and xanthomas. Hypertrichosis[5] can be safely and effectively treated with high frequency currents provided the equipment is especially constructed for this type of microdestruction of hair follicles.

GALVANIC CURRENT

The galvanic current[6] is used for common ion transfer especially for the treatment of dermatophytosis, pompholyx, nummular eczema, varicose ulcers, scleroderma and Raynaud's disease. In dermatology, the galvanic current is used mostly for the destruction of such lesions as hypertrichosis, telangiectases, nevi, keratoses, adenoma sebaceum, benign cystic epitheliomas and verrucae.

SOLID CARBON DIOXIDE

Refrigeration with solid carbon dioxide is useful in the treatment of verrucae, nevi, angioma, larva migrans, keratoses, many pigmentary disturbances, lupus erythematosus and lupus vulgaris. A paper is being read at this centennial meeting of the American Medical Association on the use of liquid oxygen for the treatment of many small lesions of the skin,[7] most of which have been mentioned in this paper. Liquid oxygen is so cold that it acts as a cauterizing agent.

OTHER AGENTS

Other agents used in dermatology are balneotherapy, posture, massage and infra-red rays. Time does not permit discussion of these agents. However, baths containing such medicaments as starch, bran, magnesium sulfate, sodium bicarbonate, tar, sulfur, gentian violet, silver nitrate and potassium permanganate are useful for such diseases as exudative and extremely pruritic eczematous eruptions, pemphigus, dermatitis herpetiformis, extensive folliculitis and multiple furunculosis, impetigo of the newborn, urticaria and ichthyosis. Some long-standing extensive dermatoses may be debilitating, and baths may be used for their tonic, stimulative or sedative effects. Beneficial effects from strapping and posture are noted in those cutaneous diseases secondary to vascular disturbances, such as in ulcers and wounds secondary to varicose veins, Raynaud's disease, diabetes transverse myelitis and syringomyelia. Massage is useful for such conditions as alopecia, keloids, contracted scars, scleroderma of the localized and generalized varieties and sometimes is useful in pitted scars after a severe case of acne vulgaris. Physical medicine plays a tremendous role in all branches of medicine and certainly a most important role in dermatology. Were it not for the advances made in physical medicine it would have been impossible for dermatologists to attain the high percentage of good therapeutic results in the management of many recalcitrant dermatoses. Further critical scientific studies will help better to evaluate the use of physical agents in dermatology.

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[1] MacKee, G. M., and Cipollaro, A. C.: X-Rays and Radium in Treatment of Diseases of the Skin, ed. 4, Philadelphia, Lea & Febiger, 1946.

[2] Costello, M. J., and Luttenberger, L. V.: Fluorescence with the Wood Filter as an Aid in Dermatologic Diagnosis, New York State J. Med. **44:** 1778 (Aug. 15) 1944.

[3] Cipollaro, A. C.: Light Therapy in Dermatology, Arch. Phys. Therapy **23:** 133, (March) 1942.

[4] Handbook of Physical Medicine, Chicago, American Medical Association, 1945, p. 331.

[5] Karp, F. L.: High Frequency Current in the Treatment of Hypertrichosis, Arch. Dermat. & Syph. **43:** 85 (Jan.) 1941.

[6] Cipollaro, A. C.: Electrolysis, J. A. M. A. **111:** 2488 (Dec. 31) 1938.

[7] Kile, R. L., and Welsh, A. L.: Liquid Oxygen in Dermatologic Practice, Arch. Dermat. & Syph. **57:** 57 (Jan.) 1948.

PHYSICAL MEDICINE IN THE TREATMENT OF FRACTURES

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During the decade just elapsed the importance of physical medicine in the treatment of fractures has become increasingly recognized by the rank and file of the medical profession. In the past the attention of the surgeon has been focused primarily on the bone itself, and treatment has been designed to obtain adequate reduction and firm fixation of the bony fragments in order to obtain good union in good position. Often this has been accomplished by the use of heavy casts immobilizing many joints without consideration of the effect on the soft tissues. Such an attitude was unfortunate because the bones are only the supporting framework of the extremities and efficient function is the result of the normal interplay of muscles, tendons and joints under the control of an efficiently functioning nervous system.

The local treatment of a fracture is no longer merely a question of obtaining adequate reduction as shown by roentgenograms, holding that position by splints or traction until the bone is firmly united and then hoping that some degree of usefulness of the member will eventually supervene. It is a complex situation in which treatment of all the other component parts of the extremity is as essential as treatment of the bone itself. This has increased the complexity of the problems associated with treatment of fractures because there are two apparently antagonistic objectives to be attained. The fractured bone ends must be held immobile in constant apposition to aid the progress of union, while at the same time motion must be encouraged in the muscles and joints to aid in the removal of hemorrhage and exudates and to prevent the undesirable sequelae of muscle atrophy, swelling, joint stiffness and circulatory changes. In the solution of these problems physical aids are becoming increasingly important.

MOST COMMON CAUSES OF DISTURBED FUNCTION

The most common causes of disturbed function resulting from fractures are the following: (1) malposition and malunion, (2) nonunion, (3) joint stiffness, (4) muscle atrophy and (5) circulatory disturbances. I will discuss each of these causes individually.

1. *Malposition and Malunion.*—Malposition and malunion cannot be treated successfully by physical medicine. It is absolutely essential that an adequate reduction be obtained by closed methods, if possible, but by open operation if that is necessary. Physical therapy is not a substitute for reduction.

2. *Nonunion.*—Not all the causes of nonunion are well defined. However, there are several well known factors which promote nonunion. Motion at the fracture site tends to promote nonunion by breaking the capillaries which are attempting to grow into the fibrous callus and thus disturbing the blood supply to the part so that nonunion is a result. It is therefore essential that adequate immobilization be maintained at the fracture site. The bone must be held immobile. However, this does not mean that the entire extremity must be immobile. Normal circulation to the part is also important in obtaining good union. Blair [1] has emphasized the importance of alternate hyperemia and ischemia such as is obtained by normal muscle function. Anything which tends to make the circulation to the part more normal will also tend to assist the healing process. This does not mean, however, that the application of heat alone will assist the healing process: if the heat is efficient enough to cause long-continued hyperemia, the result will be a decrease in calcification, since continuous hyperemia causes absorption of calcium from bone. Active use of the part, especially after union has started, tends to make the union more firm.

Stiffness, Muscle Atrophy and Circulatory Disturbances.—Joint stiffness, muscle atrophy and circulatory disturbances may be grouped together in discussion of their causation and treatment.

The injury which accompanies a fracture is not limited to the bony structures. It is obvious that the force causing a fracture is transmitted to the bone through the surrounding soft tissues. It is equally as apparent that trauma to the soft tissue is the inevitable accompaniment of fracture of the bone. This soft tissue injury manifests itself in numerous ways. There may be hemorrhage into muscle, fascia, joint and areolar tissue. That this frequently occurs is evidenced by the usual presence of discoloration and swelling following fracture. The hemorrhage may be limited to a comparatively small hematoma in the region of the fracture or may involve an entire extremity and in some cases may even extend to the trunk. At the same time there is usually a decided swelling which cannot be accounted for by extravasated blood. This apparently is an extravasation of lymph or tissue fluid. The resultant edema may be so pronounced that the normal landmarks of the extremity are totally obscured. Only a few hours are required for this swelling to develop to its fullest extent. Thus the ordinary fracture is complicated by the presence of soft tissue swelling which must be treated in addition to the bone injury.

The removal of this extravasated blood and tissue fluid is accomplished either by absorption into the blood stream or by the organization of its fibrinous components into fibrous tissue which may interfere materially with the function of the extremity. If the circulation to the part is adequate, the major portion of this exudate may be removed in a relatively short time by the natural process of absorption into the venous circulation. If, on the other hand, the circulatory efficiency of the veins and lymphatics is moderately impaired, as is commonly the case after trauma with its resultant muscle spasm and inactivity, organization proceeds at a rapid rate. According to Murray [2] this organization is well started within

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Read in a Panel Discussion on Physical Medicine in General Practice before the meeting of the Section on Miscellaneous Topics at the Ninety-sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1947.

[1] Blair, H. C.: Alternation of Blood Supply as Cause for Normal Calcification of Bone, Surg., Gynec. & Obst. **67**: 413 (Oct.) 1938.

[2] Murray, C. R.: Immediate and Early Physical Therapy in Management, Arch. Phys. Therapy **19**: 74 (Feb.) 1938; The Exact Role of Physical Therapy in the Treatment of Fractures, Surg., Gynec. & Obst. **56**: 479 (Feb., no. 2A) 1933; Proper Place of Physical Therapy in the Treatment of Fractures, J. A. M. A. **97**: 235 (July 25) 1931.

seventy-two hours and by the end of ten to twelve days has progressed to considerable magnitude. He stated: "In the first five to ten days a large proportion of this exudation and infiltration can be removed from the part, before it can undergo organization, by any mechanism which will restore the normal circulatory efficiency of the part." It must be remembered, however, that it is the circulatory efficiency of the venous return that is important in this case. Increase of the arterial circulation alone will result in increased edema and swelling and will therefore be harmful rather than helpful to the removal of tissue exudates. This is the reason that heat should not be used alone in the treatment of fractures but should always be accompanied by massage, elevation or active muscular contraction.

If allowed to progress to completion the organization of blood and tissue fluid culminates in the formation of firm fibrous adhesions which may cause pain, limitation of motion and circulatory impairment. The organization of this fluid into fibrous tissue is concomitant with and analogous to the development of fibrous tissue about the fractured bone ends which results in the formation of bony callus. Therefore it must be treated immediately after the fracture has occurred and not after the fracture has solidified.

Thus the pathologic development may be divided into two stages. The first is the stage of organization in which appropriate treatment may result in removal of the disturbing elements. This stage probably lasts two or three weeks. The second is the stage of scar tissue formation in which fibrous adhesions limit function. Treatment in this stage is slow and laborious and sometimes ends in complete failure. Watson-Jones [3] has aptly said, "edema is glue."

It is my opinion that the greatest single cause of disability in fractures is the presence of persistent swelling during the period of immobilization.

TREATMENT

Treatment for these conditions should be started immediately after the fracture is reduced and immobilized. At first the treatment should be directed mainly toward the removal of hemorrhage and edema. This may be accomplished most efficiently by active exercise. Normal venous return flow circulation from the extremities is accomplished through muscle contraction. By careful choice of the immobilizing apparatus, active motion of some portion of the extremity is usually feasible throughout the period of immobilization. Close fitting, nonpadded plaster casts, trimmed so that motion is possible in all joints except those required to maintain the immobilization, are usually satisfactory in those patients that are ambulatory. Skeletal traction and internal fixation in the more serious cases allow adequate immobilization of the fracture line with minimum immobilization of surrounding joints. The great majority of fractures require only active motion for their physical therapy. In a previous study [4] at the Minneapolis General Hospital out of 3,582 cases of fracture, 986, or 27½ per cent, received formal treatment in the physical therapy department. Thus 72½ per cent were treated by active motion alone. Elevation of the affected part is a useful adjunct in removal of swelling. However, it must be remembered that for elevation to be effective, the extremity must be so arranged that there is a continuous downhill slope from the fingers or toes to the body. This means in the upper extremity that the hand must be above the elbow and the elbow above the shoulder. Obviously this is not a practical position unless the patient is in bed. The use of a sling in a Colles fracture, for instance, does not prevent swelling because an uphill grade is still present between the elbow and the shoulder. If adequate activity or elevation or both can be accomplished immediately after the fracture has been reduced the problem of removal of swelling has usually been solved and routine care in the department of physical medicine will be reduced to a minimum. However, in many cases it is impossible or impractical to achieve sufficient activity in this simple manner. It is most important that persistent swelling or inactivity be detected and the decision for treatment be made as early as possible. During the first two weeks after the injury the greatest amount of benefit can be obtained by the least amount of treatment in the shortest time. Delay in starting treatment means a disproportionately greater delay in recovery of function if firm joint adhesions or muscle atrophy or fibrosis is allowed to supervene. Formal treatment is carried out in the following manner:

Heat.—Heat may be introduced by a multitude of methods. Infra-red lamps, carbon filament bulb bakers, hot soaks, hot packs, paraffin baths, whirlpool baths, bathroom heaters, diathermy, shortwave diathermy, electric pads, the sun's rays, and numerous other sources of heat may be used. The physiologic effects of all these types of heat are the same. Their usefulness varies according to their availability and their penetration of tissues. The physiologic effects of heat briefly are: 1. Heat in mild doses as commonly used in the treatment of fractures is sedative. It relieves the pain and muscle spasm associated with injuries. 2. It increases circulation. This is most pronounced on the arterial circulation. The capillary pressure is greatly enhanced. 3. An increase in swelling results as a consequence of the greater infiltration incident on the higher capillary pressure.

Here then are two desirable effects, relief of pain and increased circulation, and one undesirable effect, increased swelling. If treatment is left at this stage, the pain will return and the circulation again decrease when the effect of the heat has subsided. But the greater swelling will often remain. Too frequently the patient is instructed to soak his fractured extremity in hot water after the cast has been removed without adequate instruction as to the use of massage and exercise following the heat. Under these circumstances if the heat used is effective the patient is just as likely to obtain decreased motion as he is to obtain increased motion.

The advisability of diathermy and shortwave diathermy in the early treatment of fractures is subject to serious question because they are the most efficient methods of applying heat and therefore may cause enough swelling to be harmful.

Massage.—The physiologic effects of massage vary with the type and dosage employed. However, as used in the early treatment of fractures (superficial stroking) the effects are: (1) sedation and relief of pain and muscle spasm; (2) increase of circulation, this time the greatest effect is on the venous side of the circle so that return flow is facilitated both reflexly and mechanically; (3) subsequent decrease of swelling because of the increased venous circulation.

All of these effects are desirable ones and are easily obtainable in skilled and gentle hands. It is dangerous to entrust the early physical therapy of fractures to most masseurs and athletic room rubbers. They are usually big burly men or women who pride themselves on their strength and who firmly believe that massage is not useful unless it hurts. As a matter of fact any treatment given in the early stage of fracture management must be not only free from pain but must relieve pain to be effective, because muscle spasm must be overcome. In addition rough treatment is likely to cause redisplacement of fragments. The objections to massage advanced by such authors as Watson-Jones[3] and Boehler[5] are apparently based on such experiences. The dosage of massage must be exactly controlled and capabilities of the patient must be kept constantly in mind. In my experience massage in the home carried out by the patient or his relatives or friends has been not only woefully inadequate but often definitely harmful, so that I not only do not prescribe home massage, but also strongly discourage it when suggested by others.

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[3] Watson-Jones R.: Fractures and Joint Injuries, Baltimore, Williams & Wilkins Company, 1944.

[4] Knapp, M. E.: Role of Physical Therapy in Fractures, Arch. Phys. Therapy 21: 401-407 (July) 1940.

Exercise.—Heat and massage as discussed in the preceding paragraphs are only preparatory to the most important procedure in the physical therapy of fractures, the controlled use of motion. Exercise is usually classified as passive and active. Passive exercise may be subdivided into relaxed motion and forced motion. Active exercise is subdivided into assisted, free and resisted active exercise.

In the early treatment of fractures the use of passive motion is not practical. Theoretically, relaxed passive motion could be used, and it is frequently ordered by surgeons who do not have a close connection with the physical therapy department in which the treatment is given. However, in practice, relaxed motion is rarely obtained early in fractures because of the fear of the patient who voluntarily or involuntarily contracts his muscles in anticipation of the motion to follow. Thus the passive motion is converted into resisted motion with the patient doing the resisting. Under these conditions displacement of the fragments is to be expected.

Active exercise is the practical method in early fractures. If adequate immobilization can be obtained by tight-fitting plaster casts or internal fixation, free active or even resisted active motion may be used especially by the performance of ordinary daily tasks that do not require great strength or heavy lifting. When it is desired to move joints in close proximity to the fracture line, assisted active motion should be used. The technician supports the part to eliminate gravity and the patient carries out the motion within the limits of pain. Under these conditions the patient will stop the motion at the earliest sign of pain and there is little danger of disturbing the fragments. Only the range of motion that is possible without pain is allowable.

The physiologic effects of active exercise are: (1) hypertrophy of muscle fibers; (2.) increased circulation, both arterial and venous; (3.) decreased swelling, and (4.) increase of strength and nutrition.

Wherever voluntary active motion may be impractical or impossible, as in nerve injuries, the use of electrical stimulation will help to prevent muscle atrophy and circulatory dysfunction. The faradic current may be used if the nerve is intact, but the interrupted galvanic or sinusoidal current must be used if the nerve is severed and the nerve endings are degenerated.

Active motion of all joints not necessarily immobilized must be insisted on between treatments throughout the course of fixation if muscle atrophy and fibrosis are to be prevented and limitation of motion is to be kept at a minimum.

General Treatment.—Since the advent of World War II increasing stress has been laid on the fact that the recovery of an injured patient depends not only on the recovery of the local injury but also on the maintenance of activity throughout the patient's body. This type of physical therapy or rehabilitation is started as early as practical, preferably immediately after the fracture has been reduced, and consists primarily of exercises designed to maintain activity, muscle tonus and muscle power in those parts of the body not concerned with the immediate injury. Exercises have been designed for all portions of the body and are performed in the service hospitals under the direction of physical education specialists. The exercises are carried out preferably in groups so that a number of men are doing the same thing at the same time. This produces a sense of competition as well as rhythm, which makes the exercises more enjoyable. Even the most severely injured patient can move some muscle, though it may be only his eyelids. The Army Air Forces have prepared several useful booklets to aid the injured soldier in recovering from his mental as well as his physical disability. These pamphlets present the problem in an interesting manner and provide charts by which the patient can follow his progress from day to day. They seem to be well adapted to the rehabilitation of large groups of injured persons who have similar backgrounds or ambitions as is the case in the armed services. These rehabilitation exercises are important, not only for the physical effects produced but also for the psychologic effects. They tend to keep the patient cognizant of the fact that he is not totally disabled, that he can carry out motions which are useful and that he will be allowed to carry on useful activities as soon as that is possible. Thus there is a logical progression of these rehabilitation exercises to the more specific types of occupational therapy which are of value in the healing stages.

OCCUPATIONAL THERAPY

Occupational therapy is so closely linked to physical therapy that there can be no absolute dividing line between them. This has become more obvious in recent years, so that the present designation of physical medicine includes both physical and occupational therapy plus the diagnostic procedures necessary for the intelligent use of both. Occupational therapy is the logical link between physical therapy and return to ordinary working conditions. It naturally divides itself into the recreational and vocational types. Occupational therapy was started as an attempt to divert the patient's mind while he was forced to remain in bed and relatively inactive. Basket weaving, knitting, sewing, leather working and artistic pursuits were suitable for this purpose. Later the adaptation of occupational devices to the treatment of involved portions of the body was employed. Special technics were used to strengthen muscles and mobilize joints by attaching grips to looms and using treadle-powered lathes and saws with devices to enable the patient to use the desired muscles and joints.

Carpentry is most adaptable to this type of treatment, so that most occupational therapy departments include well equipped carpentry shops. Here the ordinary use of tools with which most men are familiar is modified to allow treatment of special muscles or to aid in the mobilization of joints. If a patient's fingers are stiffened it may be necessary to build up the handles of the tools to allow him to grip them firmly. Screw drivers aid in restoring pronation and supination. Hammers aid flexion and extension of the wrist, and saws aid flexion

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5. Boehler, L.: The Treatment of Fractures, Baltimore, William Wood and Company, 1935.

and extension of the elbow and shoulder. Leg and foot motions are obtained by using bicycle type foot power or treadle power machines with adaptations to fit the disability of the individual patient. Looms for weaving various materials have shuttles and controls which are adjustable to the patient's disabilities. Tinsmithing, lathe work, sewing, clay modeling and similar occupations are used in the same way. These methods have accomplished their purposes fairly well but have had no connection with the patient's previous occupation or future capabilities. Many of the methods are not acceptable to men because they do not consider them to be masculine occupations.

Vocational occupational therapy is a considered attempt to have the patient use therapeutically the motions which are employed in his ordinary occupation, or if that is impossible because of severe injury, to teach him another occupation in which those movements may be useful. Typical examples are the clinic of the Workmen's Compensation Board in Toronto under the direction of Dr. Harold Storms and the rehabilitation clinic of the Liberty Mutual Insurance Company in Boston. At such centers the patient is put to doing his usual work with adaptations to benefit his disability. He is not discharged until he is able to perform work useful from an economic point of view. For instance, a bricklayer is put to work laying bricks. At first he may only pick them up to move them from place to place. The movements are gradually increased in number and complexity until he is able to lay bricks fast enough to make him available for useful employment. It is not difficult to get him to return to work when he knows that he is able to do a full day's labor. A laborer may be put to work shoveling gravel. The same principles are used in other occupations.

Storms[6] has listed the following principles:

1. Therapy should not be fixed or inviolate but in a constant state of change, ready to absorb new forms or modifications of old to suit an ever new set of conditions.
2. Therapy should be aimed not only at an increased range of movement in stiff joints, abolition of pain and reeducation of muscles, but also at an increase in muscle power to that needed by the workman when he renews his employment.
3. The injured workman is not a mental patient. He is keen to get back to work and what is necessary is to build up muscle strength and limber the joints. While there are occasional cases of loss of morale or even of malingering, these are in the minority and are handled by the therapists in their stride.
4. The best form of work therapy is exercise with the tools to which the patient is accustomed. This has a three-fold advantage: 1. The patient does not have to learn a new technic. 2. The proper muscle groups are exercised. 3. The patient is able himself to note his progress and to help decide on his fitness for work.
5. There should be a physical therapy and an occupational therapy department, with cooperation between the aides of the two departments.

Griffiths has advanced the same ideas in his observations on the conditioned reflexes of industry which are so complex that the use of the workman's own tools is required for the best results.

While recreational therapy is useful when the patient is in bed and has a limited usefulness during early convalescence, vocational methods appear to be much more valuable when the patient is in the later convalescent stages. The tendency at the present time is to emphasize the vocational methods and to deemphasize recreational occupational therapy.

SUMMARY

Physical medicine is not a substitute for reduction in fractures. Treatment must be started early, that is, during the period of immobilization, for best results. Persistent swelling is the most frequent cause of disability following fractures. Active motion is the most effective treatment for this swelling. Physical therapy and occupational therapy should be combined for the most effective therapy for postfracture disabilities.

PANEL DISCUSSION

TILTED PELVIS

QUESTION: In our town we have an active osteopathic society with a roentgenologist, and there is a consequent thought prevalent that patients have a "tilted pelvis." My question is, in your opinion how frequent is the condition of a "tilted pelvis" and how often is it the cause of backache?

DR. OBER: Seventy-five per cent of the old lame backs that I have seen in the last year, some of them existing as much as twenty-five years, are due to tilted pelvis; it is common, and it is due usually to a short leg or an inequality between the ilium and the femur. A lift under the heel until the patient's spine is leveled will cure most lame backs. I received $5,000 from a gentleman once who had spent thousands of dollars on his back. He said, "Never mind. Common sense is worth a lot of money."

PHYSICAL MEDICINE IN OSTEOARTHRITIS

QUESTION: Is physical medicine as useful in osteoarthritis as it is in rheumatoid arthritis? Should exercise be stressed in the treatment of osteoarthritis?

DR. SOLOMON: Physical therapy is used for all forms of arthritis. Time did not permit differentiating the various forms. I stress this matter of the exercises for the patient with rheumatoid arthritis because it seems to be more important. There is this difference, though: In rheumatoid arthritis and in osteoarthritis the pathologic changes are different. In osteoarthritis or hypertrophic arthritis, there is no danger of deformity or contours. Most of the patients will benefit from the ordinary exercises which they get themselves. Sometimes I will tell these persons to rest their knee or their back, and they will be helped. Some of these patients are inclined to want to exercise a great deal because they believe it will prevent stiffness. Patients with hyperthrophic arthritis are cautioned particularly in that regard.

QUESTION: Is galvanic current indicated to reduce swelling with severe ichthyosis?

DR. CIPOLLARO: I have never used it. I think maybe you can answer that question, Dr. Krusen.

DR. KRUSEN: I do not believe that it is.

DR. KNAPP: In my opinion, that is not a useful method.

DR. SOLOMON: I certainly agree with what you say, Dr. Krusen. I think there are simpler methods to do it, and why go to that difficulty?

HERNIATION OF INTRAVERTEBRAL DISK

QUESTION: How often is pain in the back due to herniation of the intervertebral disk?

DR. OBER: Not very often. The Greek literature would lead one to think that every backache was due to a ruptured disk. If that is so, then every headache is due to a brain tumor. The point is that the neurologist sees these patients, and he says that the pain is all due to ruptured disks. As a matter of fact, there are millions of patients with lame backs who get well without any treatment, and there are others who get well with treatment by their own family physician. Then when the family physician does not succeed, they go to the orthopedic surgeon, and he cures most of those persons. The few that are left have herniated disks. I would say that about one hundredth of 1 per cent of all lame backs might come in the disk syndrome.

SUCTION-PRESSURE FOR PERIPHERAL VASCULAR DISEASE

QUESTION: What has been your experiense as to the value of the suction-pressure apparatus in peripheral arterial obstruction?

DR. MCCLELLAN: I believe that the suction-pressure apparatus has little place today in the treatment of peripheral vascular disease. There may be a few isolated cases in which the obstruction is sufficient to warrant its use. I think that if one watches the clinics where this has been in use, one will find most of the apparatuses are covered with dust and are in the storeroom.

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[6] Storms, H. D.: Rehabilitation of Convalescent Industrial Casualties with Physical Medicine, Arch. Phys. Therapy 25: 469 (Aug.) 1944.

Dr. Ober: In the March 1 number of The Journal is a small article on histidine (Wirtschafter, Z. T., and Widmann, R.: Elaboration of Histamine in Vivo, J. A. M. A. 133:604 (March 1) 1947). There has been a remarkable result from the use of histidine and the use of large doses of ascorbic acid in getting rid of gangrene of the lower extremities due to arterial occlusion. It is probably useful in Bürger's disease and other similar diseases.

DIATHERMY IN PRESENCE OF METALLIC INTERNAL FIXATION

Question: Is diathermy contraindicated in the presence of metallic internal fixation?

Dr. Knapp: That question is one which always comes up. In my opinion, diathermy is not contraindicated in the presence of metallic internal fixation, for this reason: If metal is on the skin surface there is a great difference in conductivity between the metal and the air and the skin, so the greater part of the energy is warped into the metal and burns may occur. When that metal is buried in a liquid, which is a conductor also, then the difference is not great in conductivity, so that there is not a warping of the field into the metal. Associates and I have used diathermy many times with metal which is entirely within the body, and we have never seen any harm from it.

EXERCISE FOR BACKACHE DUE TO OSTEOARTHRITIS

Question: Is osteoarthritis a contraindication to the use of exercise when the backache is attributed to this cause?

Dr. Ober: The exercise should never be used when the back is painful. There are many persons who have spurs ½ inch (1.3 cm.) long, some of them looking like ice tongs, who never had a lame back in their lives. So, these patients' lame backs are really not due to the osteoarthritis; they are due to their disturbed physiology, because they get over their lame backs. The time for exercise in lame backs is the time between attacks. Get the muscles restored so that another attack is avoided. It is all very well to treat lame backs as soon as the pain disappears and to get the patients going, but that does not accomplish anything, because they go out and hurt their backs again. However, arthritis is no contraindication for exercise.

GRADED EXERCISES FOR CHRONIC MYOCARDITIS

Question: Will you please discuss graded exercises for chronic myocarditis?

Dr. McClellan: Graded exercises from the flat walk to a mild degree of incline have a distinct place for these patients. Graded exercises, however, should be controlled definitely by clinical observation of the patient, the response of his heart to this exercise from his pulse rate and other indications. They should be limited in distance, and they should be increased gradually as the patient's ability to perform the exercises increases.

MANIPULATION FOR BACKACHE

Question: Do you consider manipulation of any value in treatment of backache?

Dr. Ober: I manipulated one back once, and I swore that I would never do another. All that the osteopath does is to stretch out the muscle, and there are other ways of doing it. He never cures anything. I never manipulate a lame back.

SACROILIAC STRAIN

Question: What is the underlying mechanism of the so-called acute sacroiliac strain?

Dr. Ober: That has been overrated. Sacroiliac strain has practically gone out the window. Usually sacroiliac strain occurs in fat people who have large abdomens or some twist. Most sacroiliac strains come from severe injuries. They are uncommon. They are seen after pregnancy when the pelvis has not retracted, by the shortening of the ligaments after the change in the hormone content of the mother.

MECHANICAL STRETCHING FOR CONTRACTURE OF FASCIA LATA

Question: Do you think mechanical stretching can replace surgical sectioning of the fascia lata in backache due to contracture of the fascia lata?

Dr. Ober: In most instances, yes. Rarely is it necessary to divide the fascia lata, and I do not do it nearly so often as some of my colleagues.

NAUHEIM BATHS FOR HYPERTENSION

Question: Is chronic hypertension a contraindication to the use of Nauheim baths?

Dr. McClellan: No. It is not a contraindication. The use of the Nauheim bath for that group is of value in the general influence on the body as a whole, in steadying and reducing nervous tension, which is certainly one of the major factors in many cases of hypertension. The Nauheim bath is indicated for the patient with severe hypertension who has disability and is perhaps confined to bed because of it. As I said, in the milder essential hypertensions something can be accomplished by its use.

DANGERS OF EPILATION

Question: What are the dangers of epilation? Should patients be sent to beauty specialists for removal of superfluous hairs?

Dr. Cipollaro: Unfortunately, in many communities there are no dermatologists who can do this work adequately. There are no objections to having a lay person do the work, provided that he has been properly trained and provided that he works under the supervision of a physician. In communities where there are adequate dermatologic facilities those patients should be referred to the dermatologist for treatment.

DIATHERMY FOR FRACTURES

Question: Is diathermy contraindicated in the after-treatment of fractures?

Dr. Knapp: I feel that diathermy is contraindicated in the early treatment of fractures. That is, diathermy is the most efficient method of producing heat and therefore is also the most efficient method of producing hyperemia. At least that is what is believed at the present time. It is more likely to cause decalcification than calcification. So, I restrict the use of diathermy until after union has occurred so that nonunion will not be caused by the use of diathermy.

HISTAMINE PHOSPHATE ION TRANSFER

Question: *Describe your technic of using histamine phosphate ion transfer.*

Dr. Ober: A small battery is furnished for that purpose. It has a little resistance coil in it. The handle is held in the patient's hand, which is covered with a wet cloth. The wet cloth is placed over the electrode, and this is placed on the back in the region of the muscle spasm. Then it is left on for about three minutes. It covers the whole area of muscle spasm perhaps in two or three or four applications. There is produced a hyperemia that looks like the hives. Some persons are sensitive to histamine, and occasionally a severe attack of hives occurs that may last for several weeks. So, one must be sure that the patient is not allergic nor has allergic manifestation of other sorts. If he has, one should not use the histamine locally.

REST IN MANAGEMENT OF RHEUMATIC ARTHRITIS

Question: Please discuss the place of rest in the management of rheumatic arthritis.

Dr. Solomon: Many persons ask whether one should put one's patients to bed. As I said, I do not. That might be the easiest way to answer that. I think rest certainly is indicated for these persons, but rest may be given along with exercises. They can rest for an hour in the morning and again for an hour in the afternoon. They can rest even more times during the day. But to tell a patient definitely to go to bed I think does him more harm than good.

Veterans.—One of every 10 persons in the United States is a veteran of World War II; about 2 of every 3 men between the ages of 20 and 35 are World War II veterans. By 1952, veterans and their families will number an estimated 62,300,000—or 43 per cent of the nation's population. There were more than 109,000 patients hospitalized by the Veterans Administration on March 1.—Veterans Administration Information Service, April 22, 1948.

RADICAL RESECTION OF HEAD OF PANCREAS AND TOTAL PANCREATECTOMY

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Exactly fifty years ago the first recorded successful attempt was made to remove a carcinoma of the ampulla of Vater by radical resection. After this operation by Halsted[1] only sporadic attempts at radical resection were made, most of them being unsuccessful. Then, in 1935, Whipple, Parsons and Mullins[2] devised a technic for operation in two stages which could be undertaken as a curative and not a palliative measure. The advent of vitamin K permitted one stage radical resection to be executed with less risk than had accompanied certain palliative procedures before this means of correction of deficiency of prothrombin was available. The important observations made by Dragstedt[3] concerning the physiology of the pancreas and the surgical accomplishments of Brunschwig,[4] Crile,[5] Trimble and his associates,[6] Hunt,[7] Pearse,[8] Cattell,[9] Orr[10] and others soon gave the members of the profession confidence in the procedure.

These contributions so stimulated the members of the surgical profession that with each ensuing year there have appeared more numerous reports of successful radical resection of the pancreas and duodenum, not only for malignant disease of the ampulla of Vater, head of the pancreas, duodenum and stomach, but also for benign conditions such as pancreatitis and tumor of the islands of Langerhans.

It would seem that the time is near when an attempt should be made to evaluate the results. It is hoped that this analysis will stimulate other surgeons with a considerable experience to review similar operations performed by them, so that from the combined experience of all it can be determined when these formidable resections should or should not be undertaken.

SURVEY OF CASES AT MAYO CLINIC

In the following review are included all cases in which radical resection of the head of the pancreas and the duodenum was attempted at the Mayo Clinic up to Jan. 1, 1947 (table 1). In all, 49 patients underwent a modified Whipple operation. There were 13 deaths in the hospital, or an operative mortality rate of 26 per cent. Six patients underwent total pancreatectomy[11] 1 died. Forty-three underwent radical resection of the head of the pancreas and the duodenum; 12 of them died in the hospital, an operative mortality rate of 28 per cent.

TABLE 1.—*Radical Partial and Total Pancreatectomy for Benign and Malignant Disease: All Cases at Mayo Clinic to Jan. 1, 1947*

Operation	Patients	Hospital Deaths	
		Number	Percentage
Excision of head of pancreas and duodenum	43	12	28
Total pancreatectomy	6	1	17
	—	—	—
Total	49	13	26

A likely explanation for the lower mortality rate which accompanies total pancreatectomy is that (1) removal of the body and tail of the pancreas and the spleen adds little to the procedure of removal of the head of the pancreas and the duodenum, and (2) because the entire pancreas is excised, any leakage or fistula from the pancreatic stump is obviated. This does not indicate, however, that total pancreatectomy should be performed in preference to partial pancreatectomy when the latter will eradicate the disease, since the metabolic derangements which will follow total excision may outweigh any possible advantages of the more radical operation.

TABLE 2.—*Radical Excision of Head of Pancreas and Total Pancreatectomy for Benign Disease*

Condition	Operation	Patients	Hospital Deaths	
			Number	Percentage
Islet cell tumor of head of pancreas	Total pancreatectomy	3	1	33.3
Chronic pancreatitis with calcification and intractable pain	Total pancreatectomy	2	0	0
	Excision of head of pancreas and duodenum	6	4	66.7
		—		
		8	4	50
Total operations for benign lesions		11	5	45

Although only 11 patients have been operated on for benign disease of the pancreas, it is interesting to note (table 2) that the operative mortality rate for such an operation is more than twice that of pancreatectomy done for malignant disease (table 3). This is probably due to the greater technical difficulties that may arise when the surgeon is confronted with an inflammatory process that frequently becomes adherent to the superior mesenteric vein and may result in gross operative hemorrhage, such as happened in 2 instances among the 8 persons operated on for chronic pancreatitis. The other 2 deaths resulted from peritonitis and massive pulmonary embolism, respectively. The fact that there were no deaths in the hospital after total pancreatectomy for chronic pancreatitis would bear out the point that it is exceedingly important to defer resection of a part or all of the pancreas for inflammatory conditions until the process is in the chronic end stage of calcification—as it was in all the successful resections—and not

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From the Division of Surgery, Mayo Clinic.

Read before the Section on Surgery, General and Abdominal, at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

[1] Halsted, W. S.: Contributions to the Surgery of the Bile Passages, Especially of the Common Bile-Duct, Boston M. & S. J. **141**: 645-654 (Dec. 28) 1899.

[2] Whipple, A. O.; Parsons, W. S., and Mullins, C. R.: Treatment of Carcinoma of the Ampulla of Vater, Ann. Surg. **102**: 763-776 (Oct.) 1935.

[3] Dragstedt, L. R.: Some Physiologic Problems in Surgery of the Pancreas, Ann. Surg. **118**: 576-589 (Oct.) 1943; The Present Status of Lipocaic, J. A. M. A. **114**: 29-32 (Jan. 6) 1940.

[4] Brunschwig, A.: Resection of Head of Pancreas and Duodenum for Carcinoma—Pancreatoduodenectomy, Surg., Gynec. & Obst. **65**: 681-684 (Nov.) 1937.

[5] Crile, G., Jr.: Successful Resection of the Head of the Pancreas for Carcinoma, Cleveland Clin. Quart. **5**: 250-258 (Oct.) 1938.

[6] Trimble, I. R.; Parsons, J. W., and Sherman, C. P.: A One Stage Operation for the Cure of Carcinoma of the Ampulla of Vater and of the Head of the Pancreas, Surg., Gynec. & Obst. **73**: 711-722 (Nov.) 1941.

[7] Hunt, V. C.: Surgical Management of Carcinoma of the Ampulla of Vater and of the Periampullary Portion of the Duodenum, Ann. Surg. **114**: 570-601 (Oct.) 1941.

[8] Pearse, H. E.: A Simplified Anastomosis for Resection of the Duodenum and Head of the Pancreas, Surg., Gynec. & Obst. **75**: 333-336 (Sept.) 1942.

[9] Cattell, R. B.: Pancreatoduodenal Resection: Preliminary Report of Eighteen Cases, New England J. Med. **232**: 521-526 (May 10) 1945.

[10] Orr, T. G.: Resection of Duodenum and Head of Pancreas for Carcinoma of the Ampulla, Surg., Gynec. & Obst. **73**: 240-243 (Aug.) 1941.

[11] Waugh, J. M.; Dixon, C. F.; Clagett, O. T.; Bollman, J. L., Sprague, R. G., and Comfort, M. W.: Total Pancreatectomy: A Symposium Presenting Four Successful Cases and a Report on Metabolic Observations. Proc. Staff. Meet., Mayo Clin. **21**: 25-46 (Jan. 23) 1946

to attempt pancreatectomy in the face of subacute inflammation.

INDICATIONS FOR PANCREATECTOMY

Naturally, all conservative measures, such as prolonged drainage of the common bile duct either by insertion of a T tube or by choledochoduodenostomy, should be tried before resection is attempted. If these measures fail and the process of calcification is limited to the head of the pancreas and the pain is intractable, resection of the head of the pancreas should be undertaken. If, however, the calcification involves the entire pancreas, the pain remains intractable and there are associated diabetes and insufficiency of the external secretion, then total pancreatectomy is advisable. Already there are encouraging reports of relief obtained for patients with this type of pancreatitis by performance of thoracicolumbar sympathectomy alone or this type of operation associated with vagotomy. It is hoped that the late results will be satisfactory, since such procedures can be done with only a fraction of the risk of pancreatectomy.

TABLE 3.—*Radical Partial Pancreatectomy for Carcinoma: Operative Mortality**

		Hospital Deaths					
Site of Lesion	Operation in	Patients		Number		Percentage	
Head of pancreas	One stage	15		2		13	
	Two stages	4		1		25	
		—	19	—	3	—	16
Ampulla or papilla of Vater	One stage	13		3		23	
	Two stages	3		1		33	
		—	16	—	4	—	25
Duodenum and stomach	One stage		3		1		33
			—		—		—
Total			38		8		21

* Thirty-seven patients underwent radical excision of head of pancreas; 1 patient underwent total pancreatectomy.

Occasionally, total pancreatectomy will be necessary for islet cell tumor. Total pancreatectomy has been performed three times at the Mayo Clinic among a total of 46 patients in whom islet cell tumors were found at surgical exploration during the past twenty years (table 2).

Before a patient undergoes total pancreatectomy for islet cell tumor of the head of the pancreas, it is imperative to determine (1) that the patient's symptoms are due to spontaneous hypoglycemia, (2) that the tumor is not situated in the tail or body of the pancreas, where about 80 per cent of such tumors are found, or in an accessory pancreas, (3) that if the tumor is situated in the head, local excision with preservation of the pancreas is not possible or that resection of the head of the pancreas, which would obviate diabetes and deficiency of external pancreatic secretion, is not possible and (4) that the symptoms and disability produced by the tumor outweigh the magnitude of the operation and the disturbance in metabolism which follows it.

If, after careful surgical exploration, a tumor is not palpable, it is usually advisable for the surgeon to resect the tail and body of the organ and, if on immediate careful examination of this specimen by the pathologist no tumor is found, the surgeon ought then to proceed with removal of the head of the pancreas.

DATA ON OPERATION FOR MALIGNANT LESIONS

A total of 38 patients underwent operation for malignant processes (table 3). For 37 of these radical resection of the head of the pancreas and the duodenum was performed, and for 1 patient total pancreatectomy was done. There were 8 deaths in the hospital, an operative mortality rate of 21 per cent. Among those patients who had malignant lesions, 19 had carcinoma of the head of the pancreas, 16 had carcinoma of the ampulla or papilla, 2 had carcinoma of the duodenum and 1 had extension of the malignant process into the head of the pancreas from a primary carcinoma of the stomach. It is pertinent and significant that 15 patients underwent operation in one stage for carcinoma of the head of the pancreas, with an operative mortality rate of 13 per cent. This figure is near that for palliative operations at the present time. The operative mortality rate for lesions of the ampulla of Vater was 23 per cent in the case of 13 patients who underwent a one stage operation. This is appreciably higher than the operative mortality rate among those who had carcinoma of the head of the pancreas. Actually, there should not be this difference in risk, and as the series becomes larger the discrepancy between the operative risk of lesions of the ampulla and that of lesions of the head of the pancreas will become less.

FOLLOW-UP STUDY ON THIRTY PATIENTS

For the purpose of evaluation of survival beyond the immediate postoperative period, the group of 30 patients who had had a malignant lesion as reported by Clagett and me,[12] and all operated on prior to Jan. 1, 1946, were examined or reached by letter by March 1, 1947.

In table 4 is a total of 24 patients who survived operation; 15 had died in the interim from recurrence, and 9 were living without definite evidence of carcinoma at the time the inquiry was made. The survival rate among those patients who had had carcinoma of the head of the pancreas is discouraging, for 11 of the 14 surviving the operation already had succumbed at the time of inquiry. The average length of palliation for this group was 8.4 months (table 5). It is doubtful that palliation of greater duration was obtained from radical resection than might have been expected from cholecystogastrostomy or cholecystojejunostomy. The 3 patients still alive at the time of this inquiry had lived, on the average, eighteen months (table 6), and 2 of them had had involvement of lymph nodes. This is heartening, for at present radical resection offers the only hope of cure for these unfortunate patients, and because of the location of the pancreas the most radical type of resection possible is at most, so far as the node-bearing area is concerned, local excision.

TABLE 4.—*Survival of Patients, After Radical Partial Pancreatectomy for Carcinoma, Operated on Prior to Jan. 1, 1946**

Site of Carcinoma	Patients	Postoperative Deaths	Patients Surviving Operation	Deaths Due to Recurrence†	Patients Living
Head of pancreas	16	2	14	11	3
Ampulla of Vater	11	3	8	3	5
Duodenum	2	1	1	0	1
Stomach	1	0	1	1	0
	—	—	—	—	—
Total	30	6	24	15	9

* All thirty patients were traced.

† All deaths after dismissal were considered to be due to recurrence.

The survival rate of patients after resection for carcinoma of the ampulla of Vater is, as might be expected, immeasurably better than that after resection for carcinoma of the head of the pancreas. Of 8 surviving operation for the former lesion, 3 succumbed because of recurrence (table 4) and 5 had been alive for an

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12. Waugh, J. M., and Clagett, O. T.: Resection of the Duodenum and Head of the Pancreas for Carcinoma: An Analysis of Thirty Cases, Surgery **20**: 224-232 (Aug.) 1946.

average of twenty-eight months at the time of this report (table 6). One of these was alive and well three years after operation. Those who obtained only palliation survived an average of thirteen months (table 5). It would appear that some of the patients who had carcinoma of the ampulla will secure permanent cure.

TABLE 5.—*Survival Period of Those Patients Who Obtained only Palliation**

Site of Carcinoma	Patients	Postoperative Survival Period, Months				Average Survival Months
		1-5	6-11	12-17	18-24	
Head of pancreas.....	11	3	6	1	1	8.4
Ampulla of Vater.....	3	1	..	1	1	13
Stomach.............	1	1	..	..	..	4
Total...............	15	5	6	2	2	9

* All patients were operated on prior to Jan. 1, 1946.

TABLE 6.—*Survival Period of Those Patients Alive in March 1947, Without Evidence of Recurrence*

Site of Carcinoma	Patients	Months After Operation				Average Survival, Months
		12-17	18-23	24-29	30-36	
Head of pancreas......	3	1	2	..	..	18
Ampulla of Vater......	5	1	..	1	3	28
Duodenum.............	1	..	1	..	..	22
Total................	9	2	3	1	3	24

Although the results thus far recorded for the group with carcinoma of the head of the pancreas are discouraging, there is no other procedure which offers any hope of cure; hence, I feel that radical resection is justifiable and indicated for carcinoma arising in the ampulla of Vater or head of the pancreas. Furthermore, at the time of operation the surgeon may not be able to determine whether the lesion arises in the ampulla of Vater, head of the pancreas or duodenum. Even after resection, the pathologist may have difficulty in establishing the origin of the lesion.

It is obvious, then, that to give every patient his rightful opportunity for cure rather than only palliation, the surgeon will of necessity resect every lesion possible, hoping that it will prove to be a lesion of the ampulla of Vater. Naturally, the earlier in the course of the disease these patients are operated on, the better the chance of cure will be.

Jaundice should be considered an indication for surgical exploration unless incontrovertible evidence is at hand to justify medical management. The fact that the jaundice disappears spontaneously or is intermittent or mild is no sign that it is of benign origin. Several patients in our series had intermittent jaundice in the presence of carcinoma of the ampulla of Vater, and in 1 instance recently jaundice had entirely resolved after its first appearance.

The Whipple procedure, or a modification of it, also provides a curative operation for primary carcinoma of the duodenum. One patient who survived this operation in the present series was alive, well and active twenty-two months postoperatively (table 6).

So far as the mortality rate is concerned, the one stage operation in our experience has produced a lower figure (table 3). Most patients will present themselves in reasonably good condition, so that with the accepted preoperative preparation the single stage operation certainly will be associated with no increased hazard. The one stage procedure has the advantages of eradication of the malignant process at an earlier date, and the patient is spared the discomfort and expense of two major operative procedures. The single operation also usually permits an easier and more rapidly executed resection. Certain patients, however, are in such poor condition when they come for treatment that performance of a two stage procedure is obligatory. By careful preoperative analysis the condition of such patients, as a rule, can be determined with little difficulty.

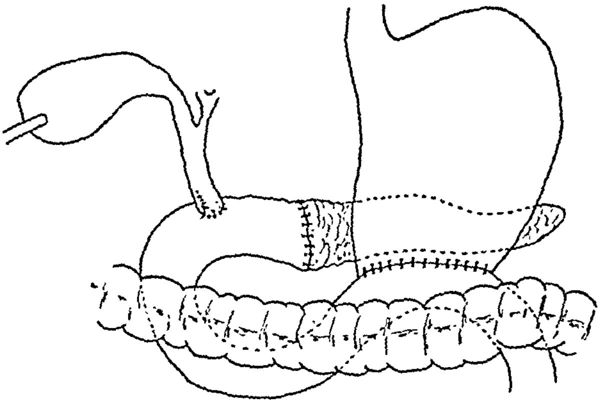

Fig. 1.—Technic for restoration of continuity of the gastrointestinal tract, biliary and pancreatic ducts after resection of the duodenum and head of pancreas (end to end pancreaticojejunostomy, end to side choledochojejunostomy, end to side postcolic, antiperistaltic gastrojejunostomy). (From Waugh.[13])

In an analysis [12] of the first 30 cases of radical resection of the head of the pancreas and duodenum at the Mayo Clinic, various methods of drainage of the biliary and pancreatic ducts and restoration of gastrointestinal continuity were compared. Conclusions were reached which it has not been necessary to change with further experience. Performance of end to end pancreaticojejunostomy, end to side choledochojejunostomy and end to side, postcolic, antiperistaltic gastrojejunostomy has proved to be satisfactory and seems physiologically and anatomically sound (fig. 1). This technic more or less isolates the biliary and pancreatic systems, so that food and the gastric secretions are shunted distally. This isolation may prevent cholangitis. Furthermore, if a malignant lesion should recur, it would not be likely to obstruct the gastroenteric stoma.[13] The technic of

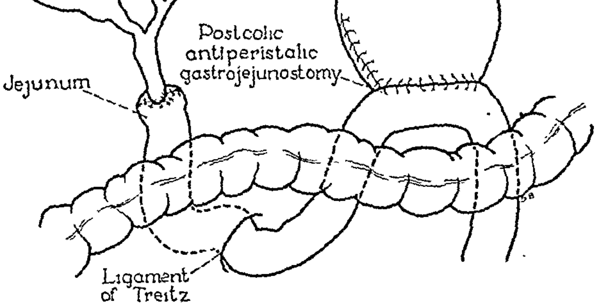

Fig. 2.—Technic for restoration of continuity of the gastrointestinal tract and biliary ducts after total pancreatectomy (end to end choledochojejunostomy, end to side postcolic, antiperistaltic gastrojejunostomy).

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[13] Waugh, J. M.: Resection of the Head of the Pancreas and Duodenum: Operative Technic, S. Clin. North America **26**: 941-948 (Aug.) 1946.

total pancreatectomy, as far as revision of the gastrointestinal tract is concerned, is the same, but end to end choledochojejunostomy is utilized since no pancreatic stump remains which requires drainage into the jejunum (fig. 2)

SUMMARY

Radical resection of the head of the pancreas and of the duodenum had been done forty-nine times at the Mayo Clinic up to Jan. 1, 1947. Eleven operations were for benign disease and thirty-eight for malignant lesions. Six patients underwent total pancreatectomy, with 1 death in the hospital. The indications for resection of the head of the pancreas and total pancreatectomy for benign disease are discussed, and it is emphasized that in such instances resection should be carried out only after careful evaluation of both the operative risk entailed and the disturbances in metabolism which might be expected. Resection for carcinoma was accompanied by an operative mortality rate of 21 per cent. In the future this figure should become lower, for already one stage resection for carcinoma of the head of the pancreas has been performed fifteen times with a hospital mortality rate of only 13 per cent.

A follow-up study of the 30 patients who had undergone resection for malignant processes prior to Jan. 1, 1946, and had survived operation, showed that 3 of 14 who had had carcinoma of the head of the pancreas and 5 of 8 who had had carcinoma of the ampulla of Vater were still alive, averaging 2 years after operation. When it is considered that, other than surgical treatment, there is no therapeutic measure available which gives these patients any chance for cure, one should constantly strive to lower the operative mortality rate for the procedure and improve diagnostic acumen, so that resection can be carried out more often while the carcinoma is still in a curative stage.

ABSTRACT OF DISCUSSION

Dr. Allen O. Whipple, New York: Radical surgical treatment of otherwise fatal cancer of the ampullary area and of the pancreas has now been going on for a period of twelve years. The procedure based on the removal en bloc of the head of the pancreas, the duodenum and the lower end of the common duct is common to all the modifications in the one and two stage operations that have been developed by a number of surgeons during this period. It is now generally agreed that with the transfusion therapy before, during and after operation to maintain blood volume, and the preoperative use of vitamin K and the nonabsorbable suture technic during the operation, that the one stage procedure is an easier and safer one than the two stage operation. The statistics reported from the Mayo Clinic, from the Presbyterian Hospital in New York and from the Billings Hospital in Chicago bear out this statement. It is logical that the radical operation for carcinoma of the ampulla should give better follow-up results than the radical procedures for cancers of the head of the pancreas. The type of carcinoma occurring in the ampulla is more apt to be of the fungating variety than the infiltrative types seen in the head of the pancreas. The early warning signal of jaundice is much more common in the cancer of the ampulla than in cancer of the head of the pancreas, where the growth may begin at some distance from the common duct, retarding the appearance of jaundice and lengthening the time for metastasis to lymph nodes and liver. One feature which is seen in many of these radical resections is the varying extent of the portion at the head of the pancreas spoken of as the lingula, which in some cases surrounds the superior mesenteric vessels and the portal vein, increasing the difficulties of separating the pancreas from these vascular structures. It is at times exceedingly difficult to tell by palpation whether the growth is removable when the head of the pancreas and the duodenum are mobilized and found to be freely movable. A method which Dr. Waugh has recommended is to begin the resection of the antrum of the stomach and common duct before dividing the duodenal jejunal junction of the jejunum distal to that area. There have been few, if any, five year arrests reported with these radical procedures. The only one in my experience has been for six years, but this patient in her last follow-up visit showed evidence of metastasis to the liver. On the other hand, it must be granted that many of these patients live for periods of one or two years free of jaundice and are given an extension of life which they would not otherwise have. The secret of success in obtaining the five year results with patients with these lesions is dependent entirely on early diagnosis, before the patient has gone for periods of weeks or months with increasing jaundice, and in this respect the internist and general practitioner can do more than any one else, referring suspected cases for surgical therapy.

Dr. Richard B. Cattell, Boston: Dr. Waugh has presented a large experience which he and his associates have had during these past three and one half years. I should like to confine my remarks to the resections for malignant disease, commenting on a series of cases which my associates and I have had in our clinic. He reported 38 patients who had resection of the head of the pancreas and duodenum for malignant disease, and during a somewhat longer period of time—since August 1942—we have had forty-four resections. The most important thing to appreciate, which has been brought out by Dr. Walters, Dr. Waugh and Dr. Whipple, has to do with the establishment of the diagnosis even in the early cases that have been explored. Unless one is able to demonstrate at operation that there is dilatation of the biliary tract and, in most cases, dilatation of the pancreatic duct which is readily palpable by digital examination, a malignant growth is not present. In most of these favorable cases from our experience, resection must be done without a positive biopsy, so that we must have these operative findings and, in most cases, the advantage of having a palpable tumor. How may one, then, determine operability in these cases? I am sure that all who are interested in this problem have been guilty of resecting lesions that should not have been resected, because resections of extensive lesions have given very bad results. Let us take, then, three contraindications to operation: (1) distant spread—and it may be possible to do a biopsy; (2) local extension—I should like to exclude those—and (3) involvement of either the portal vein or the superior mesentery vessels. If we exclude these, in 20 to 30 per cent of the cases of obstructive jaundice due to cancer resection should be done. Whipple and Waugh have both said that they feel a one stage operation should now be done with all the adjuncts that there are to resection. I should like to sound a warning relative to doing all of these cases in one stage. If the liver is very large with pronounced distention of the biliary tract, it seems to me that a one stage procedure for decompression of the liver does not complicate the second procedure and may well be advantageous to employ. Such a procedure can be easily and quickly done by a duodenojejunostomy to the full width of the gallbladder. When palliative resections are not sufficiently justified, three things can be done for palliation: the obstruction in the biliary tract can be relieved, the pancreatic obstruction can be relieved and the major blood supply that goes to the tumor can be tied up.

A Critical Caloric Value.—Our observations on protein-depleted animals are in agreement with those cited on patients and growing animals. Thus there is a restriction in the utilization of a constant quantity of protein when the caloric intake falls below a critical value of about 1,240 Cal. per square meter per day. Furthermore, elevation of the caloric intake above this level does not increase the effectiveness of the dietary protein for the synthesis of new tissue. Benditt, E. P., and others, *Journal of Laboratory and Clinical Medicine*, March 1948.

Clinical Notes, Suggestions and New Instruments

HEMORRHAGIC DIATHESIS IN HIROSHIMA, NAGASAKI AND AT BIKINI ATOMIC BOMB TEST

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New York

In three recent articles Warren and Draeger,[1] Warren[2] and Draeger and Warren[3] respectively described the occurrence of petechial hemorrhages and thrombopenia in the victims of Hiroshima and Nagasaki and in the animals which were tested at Bikini. Allen and Jacobson[4] found that hyperheparinemia and hemorrhagic manifestations occurred in animals after acute exposure of the whole body to high ionizing irradiations in the midlethal range. The increase of heparin in the circulation, thrombopenia and petechiae were the outstanding abnormalities noted in irradiated dogs.

Copley and Robb[5] have demonstrated that heparin produces thrombopenia in vivo and a decrease of single platelets in vitro. Copley and Houlihan[6] were able to explain this by showing that isolated platelets are agglutinated when incubated with heparin plasma. Thus heparin, although highly active as an anticoagulant, not only does not inhibit platelet agglutination, but induces it. This accounts for the thrombopenia.

The occurrence of petechial hemorrhage following injection of heparin was observed by Chambers and Zweifach[7] in their extensive studies on hemorrhage and hemorrhagic shock, and by Copley and Lalich[8] in their studies on hemostasis in mice. The appearance of petechial hemorrhage following injection of heparin in the nictitating membrane was recently reported by Chambers and Copley.[9] In still unpublished findings my assistant, Mr. George Kozam, and I have found the constant occurrence of white emboli in the nictitating membrane of the rabbit on the injection of heparin either systemically or locally. Injections of "merthiolate" or moccasin snake venom exhibited always petechial hemorrhages but only rarely the phenomenon of white emboli. This summer I repeated the experiment by systemic injection of heparin and have observed the same phenomenon of white emboli in the capillary circulation of the cheek pouch of the hamster.[10] Immediately thereafter blood samples were secured directly from the heart and placed between cover slips. Numerous small white emboli were observed in undiluted blood and in blood diluted with isotonic sodium chloride solution, 1:10. These emboli, which consisted of platelet agglutinates to which white cells adhered occasionally, were of the same size as the emboli seen in the capillary circulation.

Apparently embolization induced by heparin which accounts for the thrombopenia may also take part in the formation of the petechial hemorrhages. This may occur not only in heparinized subjects but also in men and in animals exposed to ionizing radiation.

From the Laboratory of Cellular Physiology, Department of Biology, New York University.

1. Warren, S., and Draeger, R. H.: The Pattern of Injury Produced by the Atomic Bombs at Hiroshima and Nagasaki, U. S. Nav. M. Bull. **46:** 1349, 1946

2. Warren, S.: The Pathologic Effects of an Instantaneous Dose of Radiation, Cancer Research **6:** 449, 1946.

3. Draeger, R. H., and Warren, S.: Medicine at the Crossroads, U. S. Nav. M. Bull. **47:** 219, 1947.

4. Allen, J. G., and Jacobson, L. O.: Hyperheparinemia: Cause of the Hemorrhagic Syndrome Associated with Total Body Exposure to Ionizing Radiation, Science **105:** 388, 1947.

5. Copley, A. L., and Robb, T. P.: The Effect of Heparin on the Platelet Count in Dogs and Mice, Am. J. Physiol. **133:** 248, 1941; Studies on Platelets: II. The Effect of Heparin on the Platelet Count in Vitro, Am. J. Clin. Path. **12:** 416, 1942; III. The Effect of Heparin in Vivo on the Platelet Count in Mice and Dogs, ibid. **12:** 563, 1942. Copley, A. L.: Platelet Counts in Blood from Splenic Vessels and Spleen Substance with Note on Heparin Effect, Federation Proc. **3:** 7, 1944.

6. Copley, A. L., and Houlihan, R. B.: On the Mechanism of Platelet Agglutination, Federation Proc. **4:** 173, 1945; The Adhesion of Rabbit Platelets to Bacteria, J. Bact. **52:** 439, 1946; Studies on Platelets: VII. The Agglutination of Platelets Isolated from Human, Dog, and Swine Blood, Blood **2**, Special Issue No. 1, p. 182, 1947.

7. Chambers, R., and Zweifach, B. W.: Personal communication to the author.

8. Copley, A. L., and Lalich, I. J.: Unpublished findings, 1940-1942.

9. Chambers, R., and Copley, A. L.: A Method and Observations on Capillary Fragility in Rabbits, Federation Proc. **6:** 88, 1947.

10. Copley, A. L.: Embolization of Platelet Agglutination Thrombi in the Hamster's Pouch Produced by Heparin, Federation Proc. **7:** 22, 1948.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report.

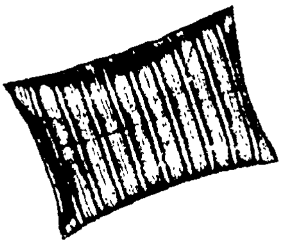
Howard A. Carter, *Secretary*

DURA-LATEX PILLOW ACCEPTABLE

Manufacturer: Century Fabrics Company, 831 West Van Buren Street, Chicago 7.

The Dura-Latex Pillow is designed for the use of patients afflicted with allergies. It is intended that this pillow will alleviate distress caused by symptoms of allergy and asthma due to inhalation of products of disintegration or deterioration of such pillow fillings as down, feathers, wool or kapok. The pillow is made of a heavy grade cotton pillow ticking, containing two muslin dividers which create three separate pockets within the ticking. These pockets are filled with foam rubber, which has been shredded into flakes. The foam rubber is made by frothing natural or synthetic liquid latex along with other ingredients into a foamy consistency which is molded and cured into a soft resilient mass. This mass is then shredded into the flakes which are used for the filling. The use of the dividers forming separate pockets within the pillow prevents the shredded flakes from bunching up in one portion of the pillow.

The dimensions of the pillow are 66 by 46 cm. (26 by 18 inches); the thickness is roughly 10 cm. (4 in.) and the weight 1.8 Kg. (3 pounds, 15 ounces). The shipping weight is 4 pounds, 8 ounces (2 Kg.).



A sample pillow submitted by the firm was examined independently by two allergists who reported it satisfactory. One noted a slight odor of rubber, but both were of the opinion that contact dermatitis or other symptoms in rubber-sensitive patients were unlikely in view of the construction of the pillow casing. Both recommended acceptance.

The Council on Physical Medicine voted to include the Dura-Latex Pillow in the list of accepted devices.

THERAPEUTIC EAR LAMP ACCEPTABLE

Manufacturer: Air-Shields, Inc., Hatboro, Pa.

The Therapeutic Ear Lamp is a small source of infrared radiation shaped somewhat like a headphone; it may be fastened over an affected ear by means of the attached head bands. It can be plugged into any 110 volt outlet, either alternating or direct current. Since it lacks a switch, it must be turned off by pulling out the plug.

A specimen of the apparatus was examined for the Council in a children's division of a large hospital acceptable to the Council. The report stated that the lamp afforded some relief from pain in acute otitis. It was difficult to keep in place on the heads of children "particularly because of the shortage of nurses"; the youngsters would take it off or pull out the plug attachment. Nevertheless, the investigator concluded that the apparatus was not dangerous in any way.

The Council on Physical Medicine voted to include the Therapeutic Ear Lamp manufactured by Air-Shields, Inc., in the list of accepted devices.

THE JOURNAL OF THE
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SATURDAY, MAY 8, 1948

EDITORIAL ANNOUNCEMENT

The absence of the compositors from their work continues. This issue of THE JOURNAL has been prepared in part by the use of Vari-Typer machines.

THE NATIONAL HEALTH ASSEMBLY

The National Health Assembly which heralded the beginning of May in Washington, D. C., established what is apparently a new record for such conferences. Definite efforts were made to ascertain points of view, to attach proper weight to each of them, and on the basis of the evidence submitted, to propose recommendations which might be considered objectives or goals in advancing health during the next ten years. Previous conferences have been suspect of having propaganda in behalf of certain proposals leading to legislation as their prime motivation. If that was the original intent of the National Health Assembly of 1948, and it seemed to be such when the proposed assembly, its financial supporters and executive committee were announced a few months ago, the subsequent developments and the final action taken have resolved the doubts and anxieties. For this credit should be be assigned perhaps to Mr. Ewing and his associates, notably Dr. Howard Kline, who evolved from the original executive committee of twenty-four members with only one physician a final committee aggregating thirty-nine with official representation for the American Hospital Association, the American Dental Association, the conference of State and Provincial Health Officers, the American Medical Association and similar bodies. On this executive committee will fall the final responsibility for evaluating the recommendations that come from the different panels or sections and for issuing a final statement to clarify objectives in health for the people of the United States.

Between seven hundred and eight hundred interested members of almost every agency in the United States concerned even remotely with health registered in the assembly. At least half of them were enrolled in sections devoted to such topics as medical personnel, local health units, research, nutrition, maternal and child health, chronic diseases and age, medical care and other significant classifications. These sections held four or more meetings in which opportunity to speak was given to any of those who wished to be heard on the subject of their own experiences or their criticisms of the opinions and experiences of others. As might be anticipated, panaceas, short-cuts, regimentations and revolutions were offered as solutions of the problems in the advancement and development of medical services. The bizarre and weird recommendations of radical proponents for remaking our system of medical care fell by the wayside. The recommendations of the steering committees in the individual panels seemed likely to yield technics for steady and continuous progress in meeting our medical needs.

In subsequent issues of THE JOURNAL the reports of each of the panels will be made available. The recommendations may be given consideration by the appropriate councils, committees and bureaus of the American Medical Association and by the House of Delegates, which will speak for the American Medical Association as to the policies considered acceptable.

Fortunately in this assembly, as contrasted with the National Health Conference of 1938, the American Medical Association was represented by competent experts in each of the fields concerned. Several members of the Council on Medical Service participated in the panel on medical care. Chairmen in several sections, notably maternal and child health, research, local health units, medical care, physical medicine, hospital facilities and mental health were distinguished Fellows of the American Medical Association. Members in adequate numbers served on the panels devoted to rural health, community organization, public health, hospitals, personnel and environmental sanitation. The Association had available, moreover, its public relations and publicity staff and additional members on the executive committee. The President of the American Medical Association and the Editor of

THE JOURNAL spoke before meetings of the entire assembly. The President-Elect, members of the Board of Trustees and of the various councils addressed the individual sections.

Clearly apparent from the first note sounded by Mr. Oscar Ewing in his opening address was recognition of the fundamental importance of a high quality of medical education for the solution of every medical problem. Second in emphasis was the necessity for consumer and professional cooperation in the development of adequate medical care at costs within the range of the mass of the people. Third was a perception of the necessity for continued experimentation in the development of technics of providing and distributing medical care suitable to the needs of a diversified population under varying economic conditions. Fourth was emphasis on the special problems of the Negro physician and the Negro patient. Such corollary questions as the availability of animals for experimentation, of funds for conducting the medical schools and research institutions on a high plane, hospitalization and health centers, technics of transportation of the sick for rural areas, cooperatives for health, group practice, medical insurance on a service or fee-for-service basis and elimination of the profit motive in prepayment plans developed extended discussion and indicated the need of more study by experts.

President Harry S. Truman, the only speaker at the opening banquet, indicated again his concern over the health problems of the nation and his continued conviction that a compulsory sickness insurance system is an acceptable solution. By far the majority of representatives of the medical profession present could not concede on this point. The voices raised in support of this contention were the same old, and now somewhat weary, voices of the Physicians' Forum, Committee on the Nation's Health, the economists of the national headquarters of the A. F. of L. and the C. I. O. When the tumult and the shouting died, the record seemed to indicate that the Blue Cross Hospitalization Plans, the nonprofit voluntary prepayment plans, the cooperatives, the group health associations, the private agencies and other forms of organization for the delivery of medical services had enrolled millions and millions of people. While there were still knotty problems not yet unraveled and areas of insufficiency not yet supplied, the nation seemed to be on the way toward the development of a plan for the production and distribution of medical services suitable to the American democracy.

DIETARY THERAPY OF HYPERTENSION

Kempner[1] reported striking therapeutic effects in a majority of his patients with hypertension by the use of a diet of rice, fruit and fruit juice. From their tests on experimental hypertensive dogs, confirmatory tests of these effects were reported by Dick and Schwartz[2] of the Department of Medicine, The University of Chicago. Hypertension was produced in these dogs by the intravenous injection of streptococci.[3] The initial mean arterial blood pressure of 120.3 mm. of mercury was increased to an average of 181.6 mm. of mercury by such injections. The hypertension was maintained at this high level for two to four years. During this period the dogs were fed on meat and dog biscuits, approximately 900 calories per day. This routine diet was changed for eight weeks to a mixture of 170 Gm. of rice, 340 cc. of fruit juice and 60 Gm. of sugar, plus daily supplements of the necessary vitamins—a total daily intake of 900 calories. By the end of eight weeks the average arterial blood pressure of these 12 dogs had fallen from 181.6 mm. of mercury to 138 mm. of mercury, an average reduction of 43.6 per cent. In certain dogs the reduction was as much as 88 per cent; i.e., from 200 mm. of mercury to 132 mm. of mercury; 120 mm. of mercury was the approximate previous normal level. All dogs lost weight on the "rice" diet, the average loss being nearly 20 per cent.

Grollman[4] and his associates have suggested that part of this reported beneficial effect of the "rice" diet was due to a rigid restriction of sodium. A test of this factor was made by Bryant and Blecha[5] of the Diet Therapy Clinic, University of Michigan. For periods of several weeks to twelve months 100 patients with essential hypertension were placed on a diet of 2,200 calories, containing approximately 200 mg. of nitrogen, 2.2 Gm. of potassium, 70 Gm. of protein, 80 to 175 Gm. of fat, 130 to 230 Gm. of carbohydrate and vitamin supplements. A daily fluid intake of 3 liters was maintained.

No pretreatment blood pressure was below 170 systolic and 100 diastolic. There was a significant lowering of blood pressure to or below 155 systolic and 95 diastolic in approximately 20 per cent of their cases, and a lowering of diastolic pressure to or below 95 in an additional 15 per cent. Several patients who originally displayed papilledema and moderately severe heart failure became free of symptoms and have shown a definite decrease in heart size accompanying the fall in blood pressure. Older patients with long-standing hypertension have experienced more striking improvements than younger patients. In a few instances, symptoms suggestive of sodium privation have been observed, which were readily controlled by a reduction in fluid intake.

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[1] Kempner, W.: North Carolina M.J. 6: 61 and 117, 1945.

[2] Dick, G.F., and Schwartz, W.B.: Proc. Soc. Exper. Biol. & Med. 65: 22, 1947.

[3] Dick, G.F.: Experimental Hypertension: Its Production in Dogs by Intravenous Injection of Streptococci, Arch. Path. 39: 81 (Feb.) 1945.

[4] Grollman, A.; Harrison, T.R.; Mason, M.F.; Boxter, J.; Crampton, J., and Reichmann, F.: Sodium Restriction in Diet for Hypertension, J.A.M.A. 129: 533 (Oct. 20) 1945.

[5] Bryant, J.M., and Blecha, E.: Proc. Soc. Exper. Biol. & Med. 65: 227, 1947.

Rigid restriction of sodium intake thus presumably explains in part the favorable results reported in hypertensive dogs when placed on a rice—fruit juice diet. Other concernable factors in this diet are now under investigation. Experimental renal hypertension in dogs, however, finds its counterpart in only a relatively few cases of hypertensive disease in man, so that results from the canine tests will be of only limited clinical application.

Current Comment

THE PROPOSED DRAFTING OF PHYSICIANS

The Council on National Emergency Medical Service, after considering the proposed drafting of physicians in connection with the reactivation of selective service, announces that it opposes any legislation that singles out doctors of medicine as a separate group from their fellow citizens for registration, draft, induction or selection for duty with the armed forces of our country. The Council strongly urges immediate establishment of a civilian medical board at the highest level of government, such as a functioning agency of the National Security Resources Board, to be responsible for the policies and programs required for the medical, health and sanitary services of the civilian population, of industry, of agriculture and of the armed forces in time of emergency or national mobilization. In time of a national emergency as differentiated from the current proposed expansion of the armed services, the Council recommends the establishment of the following priority system for the activating or the calling up of civilian medical personnel or units into the armed forces·

1. Those recent graduates who were enrolled in A.S.T.P. or V-12 programs who have not completed their obligated tour of duty as a medical officer and all others who were deferred by Selective Service to continue their medical education.
2. Other physicians who did not serve in World War II.
3. Those physicians who served the least in World War II.

The Council urges each state and local medical association to exert every effort and influence at its command within the next several days to assure the establishment of a civilian medical board in the highest level of our national government, such as a functioning unit of the National Security Resources Board. Appeals should made not only to elected representatives in Congress but to Mr. Arthur Hill, Chairman of the National Security Resources Board, Washington, D. C., and Mr. James Forrestal, Secretary of Defense. The creation of such a civilian medical board is an urgent necessity if a sound medical program and policy is to be established at the national level for the civilian population, for industry and for agriculture to be effective in a time of national emergency. The program should become operative preceding the accomplishment of the request of the armed forces, which must of neccessity deplete the limited national resources in medical personnel and facilities.

THE DISTINGUISHED SERVICE MEDAL

The eleventh award of the Distinguished Service Medal of the American Medical Association will be made at the Inauguration Meeting Tuesday evening, June 22, during the Chicago Session. This award is recognized as one of the highest honors within the gift of the American Medical Association. The medal was first presented in 1938 to Dr. Rudolph Matas of New Orleans. Since that time it has been presented to Dr. James B. Herrick of Chicago, Dr. Chevalier Jackson of Philadelphia, Dr. James Ewing of New York, Dr. Ludvig Hektoen of Chicago, Dr. Elliott P. Joslin of Boston, Dr. George Dock of Pasadena, Calif., Dr. George R. Minot of Boston, Dr. Anton J. Carlson of Chicago and Dr. Henry A. Christian of Boston. Any Fellow of the American Medical Association may submit nominations, which should be sent, together with a record of the scientific services of the nominees, to the chairman of the Committee on Distinguished Service Awards. Dr. William Weston, 1428 Lady Street, Columbia, S. C., or to the Secretary of the Association at 535 North Dearborn Street, Chicago. After careful consideration of all nominations received, the Committee will submit five names to the Board of Trustees, and the Board will select three of the five for presentation to the House of Delegates at its first meeting during the Chicago Session. The House of Delegates makes the final selection by official ballot. The recipients of the Distinguished Service Medal thus far have been physicians of distinction whose selection has honored not only the men themselves but also the American Medical Association. Nominations should be received by Dr. Weston not later than May 30. Obviously an extensive list of distinguished physicians nominated for this award will enable selection of a recipient whose name will add luster to the list of those previously chosen.

REPORTS OF OFFICERS

NOTE.—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion.—Ed.

REPORT OF THE SECRETARY

To the Members of the House of Delegates of the American Medical Association:

The following report of the Secretary is respectfully submitted:

Membership

On April 1, 1948 the official membership list of the American Medical Association contained the names of 136,668 physicians, representing an increase over the preceding year of 4,444. In preparing this report, the Secretary found it of interest to make certain comparisons: Ten years ago, on April 1, 1938, there were 109,435 members of the Association and, according to figures compiled by the Biographic Department, there were 173,879 physicians in the United States and its dependencies. The biographic records in 1948 show 201,200 physicians in the United States and dependencies, an increase of 27,321. It is interesting to note that the increase in membership in the American Medical Association over the ten year period was 27,233, only 88 less than the increase in the number of physicians. It would appear that the American Medical Association is indeed representative of the entire medical profession of the country.

Fellowship

The Fellowship roster on April 1, 1948 carried the names of 76,161 Fellows, an increase over the preceding year of 3,273. The loss of a little more than 5,500 Fellows during the war years has been recovered, and the number enrolled on April 1, 1948 is the highest that ever has been recorded since Fellowship was established many years ago. This, also, is evidence of the strong position the Association holds in the leadership of the American medical profession.

The usual table showing membership and Fellowship in the constituent state and territorial medical associations accompanies this report.

Conference of State Secretaries and Editors

The annual conference of state medical society secretaries and editors was held at Association headquarters in Chicago on Nov. 7 and 8, 1947. As had been done for the first time in the previous year, a committee of conference members made up the program. New departures in 1947 were panel discussions held in various offices throughout the building and separate dinner meetings for the secretaries and the editors. Some of those in attendance expressed disappointment that it was not physically possible to attend each panel discussion and each evening meeting. The committee to arrange the program for the 1948 conference will undoubtedly bear that fact in mind.

Organization of Constituent State and Territorial Medical Associations, April 1, 1948

	Number of Counties in State	Number of Component Societies in State	No. of Counties in State Not Organized		No. of Physicians in State 17th Ed. A. M. Directory	No. of Members of State Associations		Number of Fellows in State
			1947	1948		1947	1948	1948
Alabama......	67	67	..	..	2123	1602	1623	705
Arizona......	14	14			615	426	478	331
Arkansas.....	75	60	9	8	1806	1131	1149	425
California...	58	40	9	8	12365	8613	9223	5081
Colorado.....	63	27	1	1	1886	1333	1373	767
Connecticut..	8	8			2720	2209	2348	1429
Delaware.....	3	3			360	246	259	151
Dist. Columbia					4540	1084	1218	787
Florida......	67	33	16	17	2391	1635	1775	1074
Georgia......	159	90	37	39	2814	2012	1997	800
Idaho........	44	9		1	446	335	322	148
Illinois.....	102	92	6	6	12548	9341	9415	4730
Indiana......	92	81	1	1	4165	3618	3777	1733
Iowa.........	99	97			3102	2342	2312	1163
Kansas.......	105	74	15	15	2042	1545	1594	895
Kentucky.....	120	108	3	4	2717	1821	1954	864
Louisiana....	64	42	17	15	2601	1676	1767	878
Maine........	16	15			1011	789	754	364
Maryland.....	23	23			3085	1860	1983	1205
Massachusetts	13	18			8085	5845	6107	3114
Michigan.....	85	55		2	6509	4598	4751	2489
Minnesota....	87	35	1		3614	3276	3151	1475
Mississippi..	82	27	3	3	1525	911	1053	342
Missouri.....	114	74	7	9	5183	3517	3564	1749
Montana......	56	18	21	20	556	408	431	247
Nebraska.....	93	50	16	16	1637	1118	1163	735
Nevada.......	17	5	12	12	174	168	171	99
New Hampshire	10	10			687	539	566	308
New Jersey...	21	21	..	..	6008	4504	4825	3476
New Mexico...	31	14	17	17	447	312	285	202
New York.....	62	61	1	1	27928	20962	21717	10787
North Carolina	100	67	24	24	2871	2093	2280	1086
North Dakota.	53	13	11	11	520	388	328	181
Ohio.........	88	88	1	..	9406	7221	7214	3788
Oklahoma.....	77	57	6	6	2284	1613	1545	716
Oregon.......	36	27	1	1	1493	1142	1210	642
Pennsylvania.	67	60	5	7	13503	10579	10750	6596
Rhode Island.	5	7	1	..	958	832	838	399
South Carolina	46	36	4	5	1427	1026	1030	428
South Dakota.	69	13	1	..	493	313	333	143
Tennessee....	95	51	23	25	2961	1841	1913	1038
Texas........	254	125	..	1	6952	5321	5679	2268
Utah.........	29	8	4	5	585	561	591	345
Vermont......	14	10	3	3	551	362	398	210
Virginia.....	100	50	8	9	2920	1991	2036	1307
Washington...	39	25	13	12	2234	1765	1854	926
West Virginia	55	29	5	5	1834	1385	1482	756
Wisconsin....	71	52	..	..	3551	2806	2854	1429
Wyoming......	24	11	11	11	263	197	184	125
Alaska.......	..	..	..	..	79	49	43	19
Hawaii.......	5	4	1	1	395	367	369	145
Isthmian Canal Zone........	..	..	..	..	181	70	69	29
Philippine Islands.....	..	..	..	..	4209	..	..	3
Puerto Rico..	7	7	..	..	526	526	563	186
Foreign......	..	..	..	..	17	...	...	166
	3084	2011	314	321	185903	132224	136668	71484
Commissioned medical officers								4677
TOTAL								76161

The members of this conference, primarily the secretaries of the constituent state medical associations and the editors of the state medical journals, find in it much of value to them in their official capacities. It is the only meeting sponsored by the Association which brings together at one place and time the executive workers in the constituent organizations. It affords them and the headquarters staff opportunity to get together and iron out any wrinkles in office detail that may have developed and also affords a unique and valued opportunity for the secretaries and editors to learn more about what is going on in other states than can be learned from any other source.

In recent years official personnel of many state associations aside from the secretaries and editors have attended the conference, and it is hoped that they will continue to do so.

Actions of House of Delegates

The Secretary has complied with provisions of resolutions adopted at the Atlantic City Annual Session and the Cleveland Interim Session of the House of Delegates either by direct correspondence from his own office or by reference to the proper Council, Bureau or Committee of the Association.

Field Activity

As in the previous year, the Secretary has attended and participated in a great many meetings of state medical associations as well as a number of meetings of organizations closely allied to the medical profession. He has accepted active membership on a number of committees other than those of the Association having to do with medical affairs. While this activity has, of course, caused frequent absences from the office, it is believed that any consequent delay in routine work is offset by the advantages of wide personal contact with all phases of medical organization.

Assistant Secretary

Some time ago the Board of Trustees authorized the employment of an Assistant Secretary and on April 1, 1948 Dr. Ernest B. Howard became affiliated with the American Medical Association in that capacity. Dr. Howard is a native of Massachusetts, a graduate of Harvard University, Harvard University School of Public Health and Boston University School of Medicine. He is licensed to practice medicine in Massachusetts and in California. He was at one time director of the Division of Genito-infectious Diseases in the Massachusetts Department of Health and later was assistant director of the Venereal Disease Control Program of the United States Army, Office of the Surgeon General. For the past two years Dr. Howard has served as chief of the Health and Sanitation Field Party in Peru for the Institute of Inter-American Affairs.

The Secretary is confident that the employment of Dr. Howard as Assistant Secretary will prove to be an advantageous and forward step for the association.

All these activities have played a vital role in educating the American public to the advancements of medical science, plus the unexcelled services which physicians render for the benefit of mankind.

Office of Executive Assistant

Coordination and Public Relations

The public relations activities of the American Medical Association are being coordinated with the state and county medical societies and the public through the Office of the Executive Assistant to the Secretary and General Manager. This Office is now directed by Mr. Lawrence W. Rember, who assumed his duties Dec. 16, 1947. At the same time Theodore R. Sills and Company was retained as Public Relations Counsel to the Association.

The Director of Press Relations and an assisting staff of three work as part of the Office of the Office of the Executive Assistant. The Board of Trustees has approved a public relations budget calling for the employment by the Executive Assistant of a staff assistant and a staff writer.

Service to State and County Medical Societies

An increasing number of constituent state medical associations and component county medical societies are expanding their public relations programs to include the addition to their staffs of a public relations director or field secretary. Other states are planning to employ public relations firms to assist them in expanding their public relations activities. A program is now being formulated by the Office of the Executive Assistant to be of continuing and growing service to those responsible for conducting state medical public relations programs and county and community medical public relations programs. This is to fill a need expressed by many societies.

Some of the services to be provided include (1) holding an annual American Medical Association Public Relations Conference, (2) acting as a receiving and distributing center for state and county society public relations ideas and materials, (3) being available to state associations for consultation, (4) participating in state and county society public relations conferences, (5) stimulating the development and enlargement of state and local programs, (6) originating and preparing public relations materials and ideas of value to state society and county society programs and (7) answering and servicing special public relations requests directed to association headquarters by state associations.

A survey of the medical public relations programs of state medical associations has been completed by the Executive Assistant. Staff provisions, budgets, channels employed, the first five public relations objectives, enlargement plans and unusual activities were studied. The results of this nationwide survey have been put into chart form and an analysis has been prepared to accompany the chart. These will be distributed to the state associations for their evaluation.

Several public relations mailings to state medical associations have already been made by the Office, and a high degree of interest and a most favorable response to this type of service has been indicated. The Executive Assistant attended the public relations meeting in Boston of the Council of the New England States Medical Societies to become more familiar with the public relations thinking and doing of state and county medical groups. He addressed the meeting of the Nebraska state and county medical society officers on the subject, "Public Relations, National, State and Local." He also attended the Public Relations Panel conducted during the Regional Conference on Medical Service at Cleveland. Mr. Theodore R. Sills addressed the Minnesota meeting of state and county medical society officers on the subject, "The Public Looks at the Doctor." Participation of this kind will undoubtedly multiply in the months ahead.

Secretary's News Letter

The weekly Secretary's Letter has become firmly established as a vital news liaison between the office of the Secretary and General Manager of the

Association and the medical profession and its component and constituent societies. Because of the increase in circulation to over 3,000 copies per Letter, requests for it from others than officers and committee members of national, state and county societies cannot be filled. Activities of the various Councils, Bureaus and Committees of the Association are being reported promptly in the Letter. National happenings outside of the Association which the Secretary feels should be called to the attention of recipients are included. Unsolicited comments reaching headquarters are most favorable to the Letter.

Service to Councils, Committees and Bureaus

Public relations problems confront the councils, committees and bureaus of the American Medical Association in their various relationships. The services of the Office of the Executive Assistant are accessible at all times and are frequently called on and extended.

One special phase of service is that of publicizing the interim and annual sessions of the Association. During the Cleveland Interim Session, it was frequently commented that "One of the most successful phases of this meeting is the splendid publicity obtained."

Another special phase of service is that of publicizing special conferences sponsored by councils and committees of the Association. For example, the National Conference on Rural Health, because of its public relations value, was used as a test of what could be accomplished with adequate public education organization and manpower. Four radio networks, coast to coast, broadcast special news interviews and news salutes on the Conference. One hundred and twenty-six radio farm directors included news reports and analyses of the Conference on their farm hours, which reach millions of rural listeners. Over one hundred national, regional and state farm magazines received a complete set of news digests of the Conference speeches, and in addition special human interest photographs were furnished to some publications. Newspapers, both daily and weekly, throughout the United States received news stories over the wires of the Associated Press, United Press and International News Service and through the services of the Western Newspaper Union and the National Women's News Syndicate. In addition, forty nationally known science writers got the news. About five hundred persons attended the Conference in Chicago. Many more than 50,000,000 persons attended the Conference via their radio sets, newspapers and magazines. Such is the power of publicity in extending the valuable work of the councils, committees and bureaus of the Association.

Press Relations

Press relations is a vital part of public relations. One of the chief functions of the Press Relations Bureau is to write and distribute the weekly news bulletin, *American Medical Association News*, which contains official announcements of the Association and condensations of original articles and editorials appearing in THE JOURNAL, *Hygeia* and the special journals. This news release, containing material which may be reprinted or republished, is mailed to approximately 1,200 newspapers, press associations, magazines, radio stations, industrial house organs, medical journals and bulletins. All those who receive the release have made specific, voluntary requests to have their names placed on the mailing list. Through the years, the *American Medical Association News* has become a recognized medium for the dissemination of news pertaining to medical progress. A casual perusal of a few magazines and newspapers indicates that there is a wide interest in articles on medical subjects.

During 1947 the Press Relations Bureau received more than 4,000 inquiries from newspapers, press associations, magazines, radio stations and the like. These information centers have come to rely on the Bureau for accurate scientific facts on medicine and health. An estimated 63,000 individual stories, based on Association news releases, were published in newspapers in every state in the union during the year. The estimate is made on the basis of press clippings received in the headquarters office. The response to American Medical Association releases was much better because of the gradual relaxation of wartime restrictions on newsprint. From the number of clippings received, more newspaper and magazine stories about the Centennial Session in Atlantic City were published than for any other medical meeting ever held anywhere in the world. More than seventy writers were registered for the five day session, including three science writers from the Associated Press alone. Mr. Howard Blakeslee of the Associated Press, dean of American science writers, reported that eight thousand words a day were written on various phases of the Centennial Session by the Associated Press writers alone, the biggest single file that ever moved out of a convention city.

The press representatives were tendered a luncheon on the Saturday preceding the meeting at which time they were provided with abstracts of the most important scientific papers and with information concerning the special functions of the week. Two press rooms were in continuous operation, one in the convention hall and the other in the Traymore Hotel, where the House of Delegates met. The Press Relations Bureau provided many periodicals of national circulation with pictures related to the medical profession. These appeared on their covers and in feature articles during the Centennial Session.

During the Interim Session in Cleveland, newspapers were provided with abstracts of the best scientific papers delivered. From the point of view of publicity at that session, the award of the General Practitioner's Medal to Dr. Archer C. Sudan of Colorado made a real hit. The story of his success as a general practitioner in a small Colorado mountain town was carried far and wide by newspapers, magazines and radio stations.

The *American Medical Association News* reached a new all time high as far as newspaper response is concerned with the issue of Sept. 26, 1947. The five Chicago newspapers alone published a total of fifteen stories taken from this single issue. All the stories appeared in one day. This marked the greatest single day response since the publication was started several years ago.

Another story which received a "good play" in newspapers dealt with "Medicine and Economics"; it was written by Dr. Ernest E. Irons, Secretary of the Board of Trustees of the Association. His statement told how government medicine would give the American people an inferior, rather than a better, quality of medical care by limiting practitioners to "the deadly level of only average attainment." The *Chicago Tribune* alone devoted more than half a column to Dr. Irons' paper.

The gratifying response which the Press Relations Bureau has received from the press during the year indicates strongly that editors, reporters, feature writers and radio news commentators from every section of the country look to the headquarters office of the Association as a dependable source of information regarding medical matters. They have sought information and advice on every phase of the multiple activities of the Association and of the profession. The Press Relations Bureau through its close contact with these groups, has succeeded in "killing" a great deal of inaccurate medical information. On many occasions inaccurate information regarding medical matters has been corrected in the process of publication, while in other cases such inaccurate information has been eliminated completely through the advice and service offered.

All these activities have played a vital role in educating the American public to the advancement of medical science, plus the unexcelled services which physicians render for the benefit of mankind.

Other Services

Many other public relations activities are carried on which arise out of the exigencies and opportunities of day to day operations. Professional and trade associations, institutions, companies and corporations, through their public relations departments, turn to the public relations department of the American Medical Association for assistance. This runs the gamut in variety of requests and needs to be met. The performance of such service through the public relations department has become an accepted part of modern business activity. Increased public good will and acceptance for the Association and the profession is the direct gain.

In Appreciation

The officers and members of official bodies as well as innumerable members and Fellows of the Association not in official position have throughout the year been most helpful and considerate in all situations that have arisen, and the Secretary wishes to express his sincere appreciation. The personnel at the headquarters office also has been most helpful and deserves much praise.

Respectfully submitted,

GEORGE F. LULL, Secretary.

REPORT OF THE BOARD OF TRUSTEES

To the members of the House of Delegates of the American Medical Association:

The following annual report of the Board of Trustees is respectfully submitted to the House of Delegates.

Income and Expenditures

The official reports of the Treasurer and the Association's Auditors are appended as a part of this report.

Revenues which reached a new peak of $4,233,580.25 in 1947 were offset by larger expenditures amounting to $4,284,427.55. The excess of expenditures over income was $50,847.30; an estimate prepared in advance of the year's end indicated a larger excess in expenditures than actually occurred. Broadened activities of the Association requiring additional personnel, higher basic wage rates for mechanical and clerical employees and materials purchased at higher prices than in the preceding year are accountable for the deficit. Total wages and salaries for the year amounted to $2,347,671.00, as compared with $1,916,310.69 in 1946. Expanded facilities of councils, bureaus and departments caused an increase in expenditures from $890,178.99 in 1946 to $1,128,427.65 in 1947, a difference of $238,248.66.

Direct taxes paid by the Association, exclusive of sales and excise taxes, aggregated $74,433.75. Only a nominal amount of $1,000 was paid for legal expense in 1947.

The cost of publishing periodicals increased to $2,840,344.46 in 1947 from $2,414,163.44 in 1946, due in part to increased circulation of some periodicals but principally to higher costs. Income from subscriptions to periodicals published by the Association amounted to $1,558,483.11, while the income from the same source in 1946 amounted to $1,506,046.90. Advertising income from periodicals published by the Association totaled $2,342,605.39 in 1947, compared with $2,079,081.60 in the previous year. Interest from investments produced a return of $133,998.80.

The Journal of the American Medical Association

The circulation of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has achieved a peak

TABLE 1.—*Approximate Count of Fellows and Subscribers on The Journal Mailing List Jan. 1, 1948 Showing Gain or Loss*

State	Fellows	Subscribers	Totals	Gain	Loss
Alabama	605	510	1,115	54	
Arizona	281	254	535	50	
Arkansas	375	371	746	44	
California	4,881	6,377	11,258	780	
Colorado	617	590	1,207	106	
Connecticut	1,129	1,029	2,158	92	
Delaware	151	135	286	27	
District of Columbia	687	1,031	1,718	..	23
Florida	974	842	1,816	143	
Georgia	700	796	1,496	113	
Idaho	148	131	279	35	
Illinois	4,270	4,452	8,722	146	
Indiana	1,633	1,065	2,698	76	
Iowa	1,063	657	1,720	39	
Kansas	745	549	1,294	48	
Kentucky	714	621	1,335	94	
Louisiana	728	760	1,488	86	
Maine	314	239	553	11	
Maryland	1,005	1,258	2,263	97	
Massachusetts	2,764	2,793	5,557	375	
Michigan	2,189	2,276	4,465	140	
Minnesota	1,325	1,204	2,529	177	
Mississippi	292	327	619	39	
Missouri	1,649	1,378	3,027	61	
Montana	197	148	345	18	
Nebraska	585	400	985	..	2
Nevada	74	52	126	3	
New Hampshire	258	158	416	28	
New Jersey	2,726	2,039	4,765	326	
New Mexico	166	164	330	10	
New York	10,334	9,590	19,924	686	
North Carolina	886	923	1,809	68	
North Dakota	181	160	341	18	
Ohio	3,588	2,368	5,956	274	
Oklahoma	616	513	1,129	19	
Oregon	542	513	1,055	74	
Pennsylvania	6,096	3,644	9,740	522	
Rhode Island	349	304	653	52	
South Carolina	378	378	756	43	
South Dakota	163	131	294	..	1
Tennessee	838	762	1,600	42	
Texas	2,068	2,073	4,141	290	
Utah	245	275	520	10	
Vermont	165	141	306	21	
Virginia	1,207	944	2,151	156	
Washington	826	897	1,723	84	
West Virginia	606	397	1,003	54	
Wisconsin	1,289	1,009	2,298	85	
Wyoming	95	66	161	..	2
U. S. Army	....	555	555	..	1,403
U. S. Navy	....	1,000	1,000	..	400
U.S.P.H.S.	....	115	115	6	
Alaska	14	53	67	9	
Canada	16	1,691	1,707	381	
Philippine Islands	2	823	825	825	
Cuba	2	595	597	174	
Hawaii	105	190	295	29	
Mexico	4	471	475	39	
Panama	19	67	86	12	
Puerto Rico	136	146	282	32	
Virgin Islands	....	4	4	1	
Foreign	111	8,801	8,912	2,344	
Advertisers and agents	....	....	321	....	5
Exchanges	....	....	331	36	
Complimentary copies	....	....	109	3	
			137,092	9,604	1,836

never heretofore achieved by any other medical publication and representing the leading position that it occupies in medical literature. Its contents are carried to the most remote sections of the world. Missionaries in the Far East and Africa receive it regularly, in many instances as their one source of contact with medical science. From many foreign nations have come requests for complete files of THE JOURNAL to replace those lost in libraries devastated by the war.

As the foreign literature has begun to appear again, THE JOURNAL has taken adequate cognizance by including in its Current Medical Literature columns a listing of the contents and abstracts of the original articles in these publications. The foreign correspondence in THE JOURNAL now includes regular correspondents in London, Paris, Rome, Naples, Madrid, Geneva, Brussels, Amsterdam, Oslo, Stockholm, Ankara, Moscow, Australia, Mexico City, Puerto Rico, Rio de Janeiro, Sao Paulo, Buenos Aires and La Pas (Bolivia). THE JOURNAL maintains a regular correspondent in Washington, D. C., and includes material not only in its Washington Letter but also in the sections devoted to various governmental agencies.

TABLE 2.—*Percentage of Physicians Receiving The Journal* *

State	Number Receiving Journal	Physicians in A. M. Directory	Approximate Percentage Receiving Journal
Alabama	1,115	2,123	53
Arizona	535	615	87
Arkansas	746	1,806	41
California	11,258	12,365	91
Colorado	1,207	1,886	64
Connecticut	2,158	2,720	79
Delaware	286	360	79
District of Columbia	1,718	4,540	39
Florida	1,816	2,391	76
Georgia	1,496	2,814	53
Idaho	279	446	62
Illinois	8,722	12,548	70
Indiana	2,698	4,165	65
Iowa	1,720	3,102	55
Kansas	1,294	2,042	63
Kentucky	1,335	2,717	49
Louisiana	1,488	2,601	57
Maine	553	1,011	55
Maryland	2,263	3,085	73
Massachusetts	5,557	8,085	69
Michigan	4,465	6,509	69
Minnesota	2,529	3,614	70
Mississippi	619	1,525	41
Missouri	3,027	5,183	58
Montana	345	556	62
Nebraska	985	1,637	60
Nevada	126	174	72
New Hampshire	416	687	62
New Jersey	4,765	6,008	79
New Mexico	330	447	74
New York	19,924	27,928	71
North Carolina	1,809	2,871	63
North Dakota	341	520	66
Ohio	5,956	9,406	63
Oklahoma	1,129	2,284	49
Oregon	1,055	1,493	71
Pennsylvania	9,740	13,503	72
Rhode Island	653	958	68
South Carolina	756	1,427	53
South Dakota	294	493	60
Tennessee	1,600	2,961	54
Texas	4,141	6,952	60
Utah	520	585	89
Vermont	306	551	56
Virginia	2,151	2,920	74
Washington	1,723	2,234	77
West Virginia	1,003	1,834	54
Wisconsin	2,298	3,551	65
Wyoming	161	263	61

* This table gives the number of physicians (based on the 17th edition of the American Medical Directory) in the United States, the number receiving THE JOURNAL and the approximate percentage in each state. Copies to physicians in the United States Army, Navy and Public Health Service are not included.

The columns of THE JOURNAL are exceedingly pressed at this time for space to be devoted to the activities of the many committees, councils and bureaus which are now official agencies of the American Medical Association. Thus, much space has been devoted to the Joint Committee for the Coordination of Medical Activities and to annual conferences on rural health, on medical education and on industrial health, to the district meetings of the Council on Medical Service, to the reports of the Council on Emergency Medical Service and to the studies made by the Bureau of Medical Economic Research and similar agencies. Space has been assigned for reviews of medical motion pictures. The demand for space is giving the trustees much concern; there is in prospect consideration of a special publication to be devoted largely to the social-economic and industrial aspects of medicine.

The weekly average of copies of THE JOURNAL printed in 1947 was 134,310, which is 11,475 more copies than were printed in 1946. The net paid weekly average circulation in 1947 was 132,664 copies, a gain of 11,542 over the preceding year.

The accompanying table 1 shows the number of Fellows and subscribers on the mailing list of THE JOURNAL as of Jan. 1, 1948. Table 2 indicates the number of physicians in each state, the number receiving THE JOURNAL and the approximate percentage of subscribers in each state.

As more paper has become available, THE JOURNAL has been able to extend somewhat its content, limited, however, by labor difficulties. Special issues have included those devoted to education, hospital, state board (licensure), the annual session, the interim session and industrial health numbers, as well as three index numbers.

Field Service of Editorial Staff

Many calls come to the editorial staff of the American Medical Association for addresses on a variety of subjects to audiences of both the medical profession and the public. They are requested also to conduct courses in educational institutions on scientific writing, standardization of nomenclature and similar medical subjects.

Dr. E. P. Jordan, an associate editor who formerly edited the "Standard Nomenclature of Disease and Standard Nomenclature of Operations," has resigned from the staff and has been replaced by Dr. Richard J. Plunkett. Doctor Plunkett has assumed also the editing of the Standard Nomenclature and has attended several scientific meetings devoted to problems of nomenclature. The Board of Trustees has called a conference on nomenclature to be held in the headquarters office of the Association June 23, 1948, with a view to the preparation of a new revision of this book and its publication about 1950.

Dr. Johnson F. Hammond, an associate editor, has made several addresses each year to groups of physicians interested in problems related to medical writing and medical publication and to students in journalism and social welfare who have visited the headquarters office.

The Editor of THE JOURNAL delivers many addresses each year to county and state medical societies, business clubs, forums and educational institutions. During the current year he has conducted courses in medical writing for the American Academy of Ophthalmology and Otolaryngology and also at the University of Illinois College of Medicine. The Editor serves also on the scientific advisory boards and on the directorate of such organizations as the American Red Cross, the National Foundation for Infantile Paralysis, the American Heart Association, the American Cancer Society and the Division of Medical Sciences of the National Research Council. He has served also as consultant to several national organizations and publications and to the Army and Navy medical departments.

Special Journals

The high standard of the nine special scientific journals published by the Association was maintained during 1947, in spite of difficulty in maintaining a sufficient staff of competent manuscript editors. For this reason, and also because the paper shortage has not been entirely relieved, the size of the special journals has not been increased to what it was before the war, and some delay has ensued in the publication of articles.

Excellent colored plates were published in practically all of the special journals. Part of the expense of the plates to reproduce illustrations in colors, which has increased considerably in the last two years, has been assumed by authors.

Dr. George E. Burch was elected to the Editorial Board of the *Archives of Internal Medicine* to succeed Dr. John H. Musser, who had served on the Editorial Board for fifteen years and who died in September. One of the special features of this periodical is its excellent reviews of the literature on blood, infectious diseases, vascular diseases, syphilis, neuropsychiatry, liver and biliary tract, the heart, allergy and gastroenterology. The editors are developing a special issue honoring Sir William Osler.

Dr. Howard Fox resigned as chief editor of the *Archives of Dermatology and Syphilogy*, and a special issue of that periodical in his honor was published in November 1947. Dr. Paul A. O'Leary, already a member of the Board, was appointed chief editor and Dr. Herbert Rattner was named associate editor. Dr. H. E. Michelson was added to the Board.

The July 1947 issue of *Occupational Medicine* was dedicated to Dr. Leroy U. Gardner. Special features of this periodical were the report of a Conference on Lead Poisoning, a special report on Cash Sickness Benefits for Railroad Workers and one on the Industrial Hygiene Division, Bureau of State Services, United States Public Health Service, and a symposium on Industrial Health Education and one on Workmen's Compensation, both of which were presented in the Section on Industrial Medicine and Public Health at the Atlantic City Session of the Association.

The *Archives of Otolaryngology* continues to publish summaries of the bibliographic material on functional examination of hearing, on tumors of the nose and throat, on otitis media and complications, on chronic progressive deafness, including otosclerosis and diseases of the inner ear, on tuberculosis, on tonsils and adenoids, on allergy and on peroral endoscopy. In the last volume there was a symposium on Fenestration of the Labyrinth which was presented at the annual meeting of the American Otological Society.

The *American Journal of Diseases of Children* printed two panel discussions, one on prematurity and one on adolescence, which had been presented before the American Academy of Pediatrics.

There was a total gain of $35,735.66 on five of the special journals, and a loss of $21,920.29 on four, so that there was a profit of $13,815.37 on the nine journals.

Each of the special journals, with the exception of *Occupational Medicine*, the newest member of the group, increased its circulation substantially during the year.

Book Publications

The American Medical Association press has in the past issued more than a score of books which have attained large circulation among the medical profession. Some of these books originate from articles published serially in THE JOURNAL; others originate with the individual councils and bureaus of the Association. The increasing demands made on the American Medical Association by the expansion of circulation of THE JOURNAL and of the special journals and also for the publication of material developed by the various departments and councils made necessary the transfer of the printing and publication of these books to private medical publishers. "The History of the American Medical Association" and the "Interns' Manual" are published by W. B. Saunders Company, Philadelphia. "New and Nonofficial Remedies," "The Epitome of the U. S. Pharmacopeia," "Useful Drugs" and "Fundamentals of Anesthesia" are published by the J. B. Lippincott Company, Philadelphia. "The Standard Nomenclature of Disease and Standard Nomenclature of Operations," "Medical Writing," "The Handbook of Physical Medicine" and a collected series of articles on cancer are in process of publication by the Blakiston Company. Negotiations are in process with other publishers for some of the other books published by the American Medical Association. Each of the books thus published will bear on the title page the statement "Published for the American Medical Association." By this agreement, the Board of Trustees has made it possible to circulate these books widely and to insure their proper promotion to the medical profession on a scale much larger than has been attempted previously. The income from these publications in the form of royalties reverts to the general funds of the American Medical Association.

Hygeia

In the field of education of the public on health, *Hygeia* occupies today the leading position of all publications in the United States. As a source for authentic material, it is in constant use by schools, educational groups, industrial organizations, lecturers and voluntary health organizations. The digest magazines in great numbers quote constantly from *Hygeia* so that its content is multiplied millions of times in a great variety of digest publications. Many newspapers and radio stations likewise depend on *Hygeia* as their source for material in the field of health. Among the campaigns in which *Hygeia* has been of special assistance are those on cancer, the heart, poliomyelitis, food, water and milk sanitation and many others. The American Red Cross has cooperated with articles on first aid and home nursing. *Hygeia* is also in process of developing a special section to deal not only with child care but also with behavior problems.

During the current year *Hygeia* has been published on the presses of Kable Bros. Company in Mount Morris, Ill. This has relieved to some extent the burden on the press of the American Medical Association. Moreover, certain advantages have accrued to *Hygeia* from the larger and more complete facilities of this large publishing house.

Circulation

Hygeia in 1947, for the first time in seven years, showed a loss. A new high, however, was reached in net paid circulation and in advertising income. The net loss of $48,683.94 was principally accounted for in the decrease in the amount of advertising secured and the increase in the cost of publication, the principal items being the printing of the magazine and salaries of clerical help. In fact, every item that went to make up the publication has gradually increased to practically double. A good share of the increased expense can be primarily attributed to the cost of producing the additional copies required by *Hygeia's* growing circulation. Over the twenty-five years of its existence, *Hygeia* has shown a net profit of $138,059.42.

The average monthly net paid circulation, during 1947 was 196,046 copies, as compared with 156,983 for the previous year, a gain of 39,063 copies.

For the second year the Student Group Study Plan in high schools was used. This plan offers *Hygeia* as an auxiliary textbook for classroom study at the special group rates on school orders of ten or more copies monthly, with a free copy to the teacher. A set of questions on articles in the current issue is mailed each month to the teacher as a guide in stimulating classroom discussion of health material. During the year the number of high schools using the plan increased to one hundred and twenty, with orders for a maximum of about 4,000 copies a month.

Subscriptions received in 1947 through the efforts of the Woman's Auxiliary to the American

Medical Association continued to show a gratifying increase. The orders received from this source totaled 20,145 years of subscription in 1947, as against 15,631 for the preceding year. For the sixth year, through the efforts of the Auxiliary, the Division of Health Education of the Pennsylvania Department of Health has renewed its ten month subscriptions for high schools in the state, placing 1,090 such subscriptions. During the past year, 1,450 nine month subscriptions were entered for all rural schools in Oregon through the efforts of the state auxiliary working in conjunction with the Oregon Public Health Association. Many of the active county auxiliaries have continued to introduce the magazine to new readers and to raise funds to present group subscriptions of *Hygeia* to schools, libraries, reading rooms and other organizations in their counties. The magazine is now being sent to state legislators in Indiana, Minnesota, Ohio, Oregon and Wisconsin.

During the year *Hygeia* was exhibited at the Annual Session of the American Medical Association and at the annual conventions of the American Nurses Association, the American Public Health Association, the American Home Economics Association, the American Dietetic Association and the National Education Association.

American Medical Directory

The Eighteenth Edition of the American Medical Directory is now being compiled, and it is hoped that the book may be ready for delivery during the early part of 1949.

Since publication of the 1942 edition, information on more than 42,000 new physicians has been added to the files and the names of more than 20,000 physicians who have died have been deleted.

During the last six weeks of 1947 information cards were mailed to all physicians in the United States, its dependencies and Canada, requesting them to provide current biographic information and their present address. Of the 210,000 cards mailed, 127,329 cards, or 60 per cent, have been completed and returned. A second request for information is now being sent to all physicians who have not responded to the first request.

Hospitals, libraries, medical societies and other organizations are now being sent a proof of the information listed in the previous edition of the Directory so that such data may be revised and brought up to date.

From early estimates it is expected that good support in the way of subscriptions will be received from physicians, hospitals and commercial firms.

Library

Although still operating under the difficult conditions prevailing in 1946, the Library continued to maintain its package library department and general reference services. Answers to approximately 6,000 reference questions were prepared during the year, many by correspondence and 2,355 through the preparation of package libraries on requested subjects. High blood pressure headed the list of subjects on which material was requested. The following subjects were also popular: pregnancy (all phases), the Rh factor, peptic ulcer, cancer, anesthesia, streptomycin, alcoholism, undulant fever and cirrhosis of the liver. Requests for this type of service came from every state in the United States. Numerous requests were received from European countries, particularly Italy, France, Hungary and the Netherlands, for material on recent advances in medicine in this country. Every effort was made to help the physicians making such requests and, while package libraries could not be sent to them, tear sheets from publications of the American Medical Association were prepared on the requested subjects and sent as gifts.

The periodical lending service increased considerably during the year. Requests for the loan of 12,232 periodicals were received, representing an average of approximately 1,000 periodicals a month. This service requires a great deal of clerical work. Of special notice are the increasing demands for Library service from the various Veterans Administration libraries throughout the country. Appreciation for the service given them during the year has been expressed in several letters.

An increasing number of requests was received from various foreign countries for the reestablishment of exchanges with American Medical Association publications. Approximately one hundred such exchanges were established with Latin American and European medical periodicals. A gradual resumption of the publication of German medical periodicals has begun, and requests have been received for the establishment of exchange relations from most of them. All such exchanges have been established with those German periodicals published in the American and British zones. Printed matter is not yet permitted to be sent into the Russian zone in Germany.

Three volume indexes of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION were prepared, as usual, in the Library.

The Library prepared an exhibit for the Centennial Session of the American Medical Association in Atlantic City, N. J. The work of the Library was explained by means of charts and sample package libraries. The exhibit undoubtedly acquainted many members of the Association with a service heretofore unknown to them, which is maintained by the Association at considerable expense for their particular benefit.

The American Medical Association Library was represented at a Symposium on Medical Subject Headings held in Washington, D. C., Dec. 12, 1947 under the auspices of the Army Medical Library.

Quarterly Cumulative Index Medicus

Due to circumstances beyond the control of the Association, only one volume of the QUARTERLY CUMULATIVE INDEX MEDICUS was published during 1947, Volume 40, covering the period July to December 1946. An unprecedented delay occurred in setting the type for this volume: copies were not mailed to subscribers until early in December 1947. Publications of the INDEX MEDICUS is becoming increasingly difficult, due to the lack of sufficient and trained personnel, paper shortages, binding delays and so forth. Many new periodicals were added to the list included in the INDEX MEDICUS, the great percentage of the new titles representing European and Latin American countries. All the more important French, Italian, Scandinavian and Belgian Periodicals are now being received and indexed. At the end of 1947 there were 1,156 periodicals included in the INDEX MEDICUS. Of this number, 634 were foreign language periodicals.

In spite of the delay in production, the total number of names on the mailing list increased in 1947 by 491. Publication of the Quarterly entailed a net loss in 1947 of $33,468.67, as compared with a loss of $51,154.09 in 1946.

Cooperative Medical Advertising Bureau

The Cooperative Medical Advertising Bureau continues to assist the state medical journals in securing advertising sales, reviewing copy for the purpose of following standards and servicing each account, thereby eliminating many details for the journal offices. Helpful suggestions for advertising make-up and listings of products currently accepted by the Councils of the American Medical Association appear in the Bureau Bulletin issued each month.

The present membership consists of thirty-four state journals. The South Dakota Journal of Medicine began publication in January 1948 and is now a member of the Bureau.

Dr. Carl B. Drake, editor of Minnesota Medicine, was elected a member of the Advisory Committee of the Bureau to succeed Dr. Eldridge M. Shanklin, editor of the Journal of the Indiana State Medical Association.

The annual report of the Cooperative Medical Advertising Bureau indicates a further increase in advertising sales during 1947 over 1946. The billing for 1947 amounted to $632,394.53 after allowing for agency discount. This does not include billing for the Rhode Island Medical Journal from July through November or for California Medicine for October and November, since these publications resigned their membership in the Bureau as of June and September 1947, respectively. Gross sales exceeded $700,000. After allowing the customary 2 per cent cash discount to advertisers, totaling $12,613, and deducting the Bureau's operating expenses of $32,510.35, the net amount disbursed to the member journals during 1947 was $587,271.18.

That the Bureau has made considerable progress since its reorganization in December 1945 is shown by the fact that the net billing was increased $135,223.42 the first year and $175,361.26 the second year; the total increased business for both years amounted to $310,584.77.

The net billing for 1946 and 1947 amounted to $1,224,651.33. Previous billing, from 1913 through 1945 was $4,909,356.23, making the total to date $6,134,007.56.

Contract renewals and business on hand so far for 1948 amount to $563,476.65 and the outlook to date with a renewal expectancy of $27,810.52 on some of the present contracts which will expire during the period from May to November 1948 amounts to $591,287.17. Therefore, there will be a slight gain in 1948 for the state journal group as a whole.

Council On Pharmacy and Chemistry

The Council on Pharmacy and Chemistry is internationally known as a leader in medical research. For forty-three years it has fought for the advancement of what is best in therapy; it has encouraged research by discussion and by aiding in the organization of formative plans; it has made available grants-in-aid; it has spread medical information by various means to professional and lay groups, and it has extended the scope of its activities as needs arose.

During the past year the Council continued to advance these activities and to consolidate many of its objectives.

Research

Many conferences were held with individual research workers, with research organizations and with representatives of commercial organizations that were planning research. The Council has been actively interested in assisting in the planning of research, especially where the cooperation of several groups was involved. During the year, eighteen grants were made available and approximately thirty papers were published under the auspices of the Committee on Therapeutic Research.

Therapeutic Trials Committee

Another means by which the Council encourages research is through the Therapeutic Trials Committee, a standing committee of the Council. Several contracts for clinical investigations were executed under the auspices of the Committee during the year. Work on the following projects is now under way, and preliminary progress reports have been submitted; action of aludrine sulfate in bronchial asthma; action of streptomycin and antimony derivatives in lymphogranuloma inguinale and the action of chlorophyll preparations on the healing of wounds and in chronic nasal disorders. Final arrangements are being made to investigate the physical-chemical requirements for the preparation of ophthalmic solutions.

At the request of the National Foundation for Infantile Paralysis, the Committee explored the feasibility of conducting a nationwide critical investigation of certain methods recommended for the treatment of acute poliomyelitis. A subcommittee prepared a report outlining its recommendations with regard to such an investigation and transmitted it to the National Foundation.

The final planning of the Committee-sponsored collaborative investigation of estrogens and androgens in mammary cancer was completed during the year. Thirteen pharmaceutical firms have donated more than 5 Kg. of testosterone and proportionately large quantities of six estrogens for use in this investigation. The American Registry of Pathology at the Army Institute of Pathology is providing facilities for centralization and examination of all pathologic and roentgenologic material collected in this project. Thirty investigators at outstanding institutions in this country and Canada are participating in this investigation. Close liaison has been established with the Committee on Growth of the National Research Council, the National Advisory Cancer Council and the American Cancer Society, all of which have made funds available to participating investigators. The Subcommittee on Steroids and Cancer, which is in direct charge of this project, submitted a report, which has been published, to the Council on Pharmacy and Chemistry in summarization of the present state of knowledge on steroid hormones and mammary cancer and with an indication of the problems which require solution.

Twenty-one medical schools and hospitals were visited during the year and their facilities for research surveyed; members of the faculties interested in investigation were interviewed.

The Therapeutic Trials Committee is contemplating calling a conference at the end of 1948 of all investigators participating in the collaborative study on estrogens and androgens in mammary cancer. The purpose of this conference would be to provide an exchange of information among workers participating in these investigations and to plan the future direction of the project.

Publications and Reports

Many thousands of Council-sponsored publications, now being printed and distributed by an outside printing establishment, were sold during the year, and the number will continue to increase as all possibilities are explored. New and Nonofficial Remedies, Useful Drugs and the Epitome of the United States Pharmacopeia and National Formulary have become standard reference books in many medical and pharmacal schools. Although New and Nonofficial Remedies is not recognized as "official" under the provisions of the Federal Food, Drug and Cosmetic Act, it is generally regarded along with the United States Pharmacopeia and the National Formulary as a standard source book for statements on actions and uses of drugs and for tests and standards. In fact, a number of countries recognize "N.N.R." as an identifying mark when products are presented for entry at their borders.

The Council also adopted for publication various reports concerning the prevention and treatment of disease, among them reports on the status of methionine in the prevention and treatment of hepatic injury, use of tetrathionate, drugs for obesity, the effects of streptomycin on tuberculosis in man, homologous serum jaundice, estrogens and androgens in mammary cancer, the significance of the tissue reactions caused by antigens and "allergasol." Hundreds of reprints of these articles have been requested by physicians and others with mutual interest.

Acceptance of Drugs

One of the activities of the Council is the evaluation of remedies with the view to determining their acceptance for inclusion in New and Nonofficial Remedies. During the year, manufacturers made two hundred and seventy-three presentations to the Council, fifty-nine of which were presentations on new drugs. Of this total, three were rejected and nine others were held either exempt from the Council's rules or ineligible for consideration.

Meetings

The Council held one meeting in 1947. Consideration of products submitted to the Council and other problems are normally conducted by mimeographed bulletins that are circulated every two weeks. The topics for discussion include problems associated with the use of multiple dose containers, the status of thyroxin, scillaren and thiouracil, the omission of sulfathiazole from New and Nonofficial Remedies because of its toxic properties, the use of a sulfonamide ointment for prophylactic purposes, the status of influenza vaccines and the effect of new strains of influenza virus, the status of protein hydrolysates and concentrates, amino acid mixtures and amino acids and the sale of "over the counter" items for reducing.

Collaboration

In addition to joint enterprise with other offices at Association headquarters, the Council and its office personnel or representatives worked closely with government and nongovernment, particularly philanthropic, agencies. For example, a representative appeared at the streptomycin conferences of the Veterans Administration, at the meetings of the Committee on Drug Addiction and Narcotics of the National Research Council and at meetings of the Committee on Blood and Blood Derivatives of the Advisory Board of Health Services of the American National Red Cross. The Secretary of the Council serves as a member of the U.S.P. Revision Committee and on several of the Pharmacopeial subcommittees. As soon as new products are accepted, the Council office transmits this information to the United States Public Health Service, Veterans Administration, Pharmacopeial Revision Committee, Committee on National Formulary, Army-Navy Medical Procurement Office and the American Pharmaceutical Association. During the latter part of the year, the Office of Technical Service requested the Council office to assist in the appraisal of microfilm dealing with German developments in medicine and related fields. This service is similar to one that was provided some time ago when the Office of Technical Service requested the Council office to assist in the evaluation of reports on drugs found in Germany by teams of scientists from the United States.

Staff of the Council Office

In addition to being available for consultation concerning Council problems, those members of the office staff who are professionally trained frequently appear in speaking engagements before other groups to explain the work of the Council and to discuss topics in which the Council has interest. The Secretary and other members of the staff appeared during the year before a significant number of medical, pharmacal and lay groups and addressed the students at several medical schools.

Appreciation

The Council on Pharmacy and Chemistry wishes to extend its appreciation to all who have assisted in its work, particularly the Board of Trustees, the personnel of other offices at Association headquarters and those apart from the Association who have so freely extended their facilities and information.

Chemical Laboratory

The Chemical Laboratory of the American Medical Association was instrumental in the development of tests and standards of identity, purity and potency for twenty-eight new medicinal products during 1947. In addition, it was responsible for the examination of nearly three hundred and seventy-five individual drug products in connection with consideration by the Council on Pharmacy and Chemistry.

During the past year, which marked the forty-first year of Laboratory operation, further reorganization of the staff has been accomplished. To keep abreast of the changes in standardization and in medical practice, the Laboratory must have, at all times, properly trained and experienced scientific personnel and modern equipment. This is necessary in order that the Laboratory may perform its chief function, complementary to that of the Council on Pharmacy and Chemistry, in the evaluation of medicinal agents which the medical profession is importuned to employ.

Work for the Council on Pharmacy and Chemistry

The Laboratory has drawn up tests and standards for the following products, which were examined in connection with Council consideration: d-desoxyephedrine hydrochloride ("norodin"-Endo); fibrin foam (human); absorbable gelatin sponge; mercocresols ("mercresin"-Upjohn); methadon hydrochloride ("dolophine"-Lilly); oxidized cellulose ("hemopak"-Johnson & Johnson); sodium ascorbate; diethylstilbestrol dipalmitate ("stilpalmitate"-Abbott); sodium ricinoleate solution ("soricin sclerosing solution"-Merrell); gold sodium thiomalate ("myochrysine"-Merck); dihydrocodeinone bitartrate ("hycodan bitartrate"-Endo); theophylline methylglucamine ("glucophylline"-Abbott); chlorguanide hydrochloride; diperodon ("diothane"-Merrell); oxyquinoline benzoate; dienestrol; sodium bismuth triglycollamate ("bistrimate"-C. D. Smith); butabarbital sodium ("butisol"-McNeil); sodium tetradecyl sulfate ("sotradecol"-Wallace & Tiernan); folic acid; propyl thiouracil; "dicumarol"; chloroquine diphosphate ("aralen diphosphate"-Winthrop); isobornyl thiocyanoacetate-technical; mannitol; choline dihydrogen citrate; para-aminobenzoic acid; para-aminohippuric acid, and dihydroxy aluminum amino-acetate.

Considerable time was spent in the examination of products for which standards are currently available in New and Nonofficial Remedies or in the U. S. Pharmacopeia and the National Formulary.

The Laboratory provided considerable assistance to the Council in connection with new monographs and descriptions of dosage forms published in THE JOURNAL during the year. It also aided in the revision of New and Nonofficial Remedies, 1947, especially through provision of many additional structural formulas and editing of the Section on Tests and Standards.

Work of a Miscellaneous Nature

A display indicating the nature of the Laboratory work during the past forty years was prepared and presented at the Centennial Session. Members of the staff have attended various scientific and technical conferences during the year, and a considerable amount of time has been spent in connection with the physical arrangement for the Annual and Interim Sessions of the Association.

Work for Other Departments of the Association

In addition to the work done for the Council on Pharmacy and Chemistry, the Laboratory has examined a number of products for the Bureau of Investigation and devices for the Council on Physical Medicine. It regularly provides technical advice to the Editorial Department and the Library in connection with chemical momenclature, phraseology and indexing. It examines and comments on medical products and devices for the Advertising Committee, when such products do not fall within the purview of a particular Council.

The Laboratory does not undertake commercial analysis on a fee basis, nor does it routinely undertake the analysis of specimens or products at the request of individual physicians. It must confine its work to those products of general interest to the medical profession and to the examination of new and nonofficial remedies. Only in this manner can the facilities and staff of the Chemical Laboratory accomplish the purpose for which it was founded, namely, to assist the Council on Pharmacy and Chemistry.

Council on Physical Medicine

In 1947 the work of the Council on Physical Medicine increased over that of the war years and indeed over any previous year of the Council's twenty-three years of existence. Approximately one hundred and twenty pieces of apparatus were submitted for consideration during the year, of which twenty-nine were considered, inspected and reported on in THE JOURNAL. Consideration is going forward on the remaining appliances. Among the devices were hearing aids, electrocardiographs, humidifiers, contraceptive devices, incubators, diathermy equipment, audiometers, stethoscopes, nebulizers, sunlamps and resuscitators. Contraceptive devices previously accepted by the

Council on Pharmacy and Chemistry were transferred to the list of accepted devices of the Council on Physical Medicine.

In the course of World War II physical medicine was employed by the armed services with significant success. Research was greatly stimulated; specialists in physical medicine in the Army and Navy carried the specialty over to civilian practice, and the general practitioner became informed about the value of physical medicine. Hence, physical medicine has gained in stature.

Publications

The booklet, "Apparatus Accepted," was completely revised and brought up to date. Eleven articles were published during the year: Tentative Standard Procedure for Evaluating the Percentage Loss of Hearing in Medicolegal Cases; Home Diathermy; Orthoptics—Second Paper; Minimum Requirements for Acceptable Electrocardiographs; Acceptance of Radiant Heaters; Minimum Requirements for Acceptance of Diathermy Apparatus; The Use of X-Rays for Treatment of Hypertrichosis Is Dangerous; Tentative Requirements for Acceptance of Respirators of the Cuirass Type; Minimum Requirements for Acceptance of Generators for Electrical Stimulation of Muscles and for Ion Transfer; Acceptance of Sunlamps (revised), and the Glossary of Terms Used in Discussions of Atomic and Nuclear Phenomena. Several other articles are awaiting publication.

Atomic Energy

The Council on Physical Medicine has been gravely interested in the medical aspects of atomic energy. Only a modest amount of radioactive isotopes has been made available for medical purposes to specialists by the Atomic Energy Commission. The results of clinical trials thus far released by the Commission have revealed a limited therapeutic usefulness. The scope for application of radioactive isotopes in medical research, on the other hand, seems infinite. The Council has sponsored several exhibits on the medical aspects of atomic energy. Within the limits of released information, the Council has endeavored to keep the profession informed. The pamphlet, "Glossary of Terms Used in Discussions of Atomic and Nuclear Phenomena,' has been most popular, and a copy of it may be had for the asking.

Artificial Respiration

Research in the field of artificial respiration has been financed through the year by a special grant awarded by the Board of Trustees. Many controversial aspects of artificial respiration as it applies to manual or mechanical methods have been clarified. Cordial cooperation with the American National Red Cross has resulted in careful and fruitful study of the problem.

Products Considered

Three sunlamps, one professional untraviolet lamp and one ultraviolet disinfecting lamp were considered by the Council and all were accepted. Two infrared lamps were considered; one was accepted and one rejected. Several pillows, and covers for mattresses and pillows for the relief of patients suffering with allergies caused by bedding dust, were considered and accepted. Generators of direct and alternating current for use in diagnosis and therapy were considered by the Council. It is the opinion of the Council that there is no necessity for multiplicity of current combinations in an apparatus, since the evidence submitted to justify some of them is not satisfactory.

Ultraviolet Radiation of the Blood

Therapeutic claims are made for the irradiation of blood. In the opinion of the Council, a device for irradiating the blood does not accomplish anything therapeutically which cannot be achieved by a simpler means.

Council Consultants

American Health Resorts—At the annual meeting of the Council in December, it was voted to appoint consultants on American Health Resorts. Prior to that time, questions on this subject were considered by a committee appointed directly by the Board of Trustees.

Artificial Limbs—The Council voted to reorganize its group of consultants and study the new prosthetic devices which have been placed on the market during and following World War II. The Council voted to prepare an article for publication on the subject.

Audiometers and Hearing Aids—The article "Tentative Standard Procedure for Evaluating the Percentage Loss of Hearing in Medicolegal Cases" has been published. The revised audiogram chart is ready for distribution. Twenty-six hearing aids were submitted and ten were accepted; the others are still undergoing consideration. Three audiometers were considered, but the consultants' reports on them are not complete.

Clinical Thermometry—This group of consultants is going forward with investigations of the problems of clinical thermometry, which involve more than the mere determination of the accuracy of clinical thermometers. The Council desires further information on various factors involving the use of the thermometers, as for example, the observational accuracy of a trained nurse, the accuracy expected by a physician, the manner in which the thermometers are used and the reliance which the physician is accustomed to place on the temperature readings.

Contraceptive Devices—Six devices were submitted during the year; one investigation was completed, and the report of acceptance appeared in THE JOURNAL. The remainder are still under consideration. The "Requirements for Acceptability of Contraceptive Devices" were revised and referred to consultants for action.

Education—The consultants noted with satisfaction that the American Board of Physical Medicine held its first examination for diplomates. Special study was focused on the training course for physical therapists. The Council has cooperated with the Council on Medical Education and Hospitals with regard to this problem and has maintained cordial relations with the American Congress of Physical Medicine.

Electrocardiographs—"Minimum Requirements for Acceptable Electrocardiographs" was published. Three instruments were submitted but none of the investigations of the consultants has been completed.

Electroencephalographs—A mimeographed copy of the "Minimum Requirements for Acceptance of Electroencephalographs" is being considered by the consultants.

Occupational Therapy—This group of consultants has continued its interest in the problems pertaining to occupational therapy and has so advised the Council.

Ophthalmic Devices—The article "Orthoptics—Second Paper" was published. At the annual meeting of the Council, it was decided that the consultant group was too large to work efficiently. The members were asked to aid in the selection of a new group of consultants.

Respirators—The article "Tentative Requirements for Acceptance of Respirators of the Cuirass Type" was considered and published. Four respirators have been considered on the advice of the consultants; one was accepted.

Roentgen Rays and Radium and the Medical Aspects of Atomic Energy—The medical profession, through the advice of this group of consultants, is being informed about the medical aspects of radioactive isotopes. Ointments containing radon were under discussion by the Council, but the evidence for their therapeutic value does not appear to be sufficient to substantiate the claims made for these preparations.

The Council office has prepared a number of exhibits for loan to state medical associations and scientific sessions of allied professions. The exhibit on "Medical Aspects of Atomic Energy" was particularly interesting to the members of the medical profession at large. Other exhibits have been prepared such as the physics of hearing aids and audiometers, artificial respiration and the general practice of physical medicine.

Council on Foods and Nutrition

One of its original functions, the review of advertising for accuracy of statements, constituted a major service of the Council on Foods and Nutrition to the profession in 1947. While it is obvious that the present quality of food advertising is vastly superior to that of a generation ago, it remains a very important duty of the Council to examine advertising claims in order to insure accuracy and to encourage continued general improvement. All advertisements for Council-accepted products are reviewed by the Council, and all other food advertising accepted by publications of the American Medical Association is passed on by the Advertising Committee, of which a representative of the Council is a member. Thus in 1947, as in the year of its organization, the Council continued to serve the members of the medical profession by weeding out unacceptable advertising copy and by the encouragement of those who produce accurate informative copy.

New Products Accepted.

In 1947 the number of new products accepted by the Council, including vitamin D milks, was one hundred and thirty-eight as compared with ninety in 1946. The number of pieces of general education copy accepted by the Council was more than twice that of the preceding year.

Vitamin D Milk Program

The Council's vitamin D milk program has been completely reviewed. On Jan. 1, 1948 Council-accepted vitamin D milks, all forms, numbered seven hundred and twenty-eight. A report was prepared concerning two of the major objectives of this program, namely, the encouragement of the wider use of vitamin D milk as a public health measure and the assurance of physicians and parents that as far as possible Council-accepted vitamin D milk regularly contains the number of units of vitamin D indicated on the container. Mimeographed copies of this report are available on request.

Council-accepted vitamin D bottled milks are sold in nearly every state, and it may be assumed that in practically all communities in the United States two or more brands of Council-accepted vitamin D evaporated milk or powdered milk are available.

The Council accepted two hundred and eleven different brands of evaporated milk to each of which is added 25 U.S.P. units of vitamin D per ounce. This is equivalent to 400 U.S.P. units per reconstituted quart.

Can the vitamin D potency of Council-accepted vitamin D milk be relied on to contain 400 U.S.P. units of vitamin D per quart or per reconstituted quart in the case of evaporated or powdered milk? This is a question of immediate interest to both medical practitioners and public health officers, who are concerned with the nutritional state of population groups. The recent survey by the Council indicated a total of less than 4 per cent of assays indicating fewer than 400 units of vitamin D per quart of bottled milk. Most of the unsatisfactory assays indicated only slightly fewer than 400 units per quart, while infrequently a report indicated that no vitamin D had been added. These data have significance, because assays are done on surprise specimens of milk taken without the dairyman's previous knowledge. It is believed that the vitamin D potency of Council-accepted vitamin D evaporated milk is consistently reliable.

When control of vitamin D potency in fortified milk is taken over by state or municipal health offices it is believed that the experience of the Council in voluntary control will be valuable.

Reexamination Of Accepted Products

The work of reexamining products which have been accepted for periods of more than two years is an essential continuing function of the Council in order to assure the physician, who relies on Council acceptance, that products once accepted will continue to be acceptable. This work proceeded at an accelerated pace in 1947. All the brands of iodized salt previously accepted by the Council were reexamined or are in the process of reexamination. Some of the foods used in infant feeding were also reexamined. It is hoped that this work may proceed at an even faster pace in 1948.

Potential Areas of Usefulness

The scope of the Council is such that within its purview come the special surpose foods and a few of the general purpose foods. The rapidity with which the knowledge of foods, nutrition and food technology is advancing indicates that the Council should increase the range of its usefulness and present reports to the profession on the nutritive merits of specific foods for which new methods of manufacture have been developed.

The effect on human subjects of the newer insecticides, fungicides, weed killers and other chemical substances which farmers are beginning to use must be viewed with a critical eye, and appropriate warnings must be passed on to physicians. Some of these substances adhere to the surface of the plant or may be incorporated in growing plant tissues, thus offering potential sources of injury to consumers of foods contaminated by such substances.

Appropriate also would be a review by the Council of some of the multitude of chemical substances which are annually being urged on the bakers of the country for the purpose of extending their shortening, making larger and softer loaves of bread and delaying staling and of many other agents intended to make processed foods appear more appetizing. The extent to which some of these substances have been investigated to rule out possible toxic effects is now only partially known. Active participation of the Council in consideration of these matters could assist the medical profession in the early identification and elimination of potential mass poisonings of greater or lesser severity.

Although there may be little reason for concern at this time, the contamination of foods with the products of nuclear fission is a subject which must not be overlooked as a potential area of Council activity. A large contribution to the University of Chicago's research project in nuclear physics by one of the large food manufacturers is an indication that at least some members of the industry are concerned with the potentialities of research in this field.

In the recent past physicians have been largely concerned with mineral and vitamin deficiencies in the diet. This interest will undoubtedly continue, and the concern of the Council in this field should expand in proportion.

The vast new field of study of the interrelationships between nutrients offers an intriguing and useful field of endeavor. Increasing knowledge in this field will assist in improved technics of individual and mass feeding. At the same time that advances are being made in the field of nutrition, ground must not be lost by failure to watch carefully for potentially toxic substances which may be incorporated in foods because of ignorance and carelessness.

Nutrition Education

The new edition of the Handbook of Nutrition is nearing completion and should be ready for the printers by July 1948. Those portions which are of particular interest to the medical practitioner are being printed first in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

The study of nutrition teaching methods in schools of medicine has been continued by a committee of the Council. A report on the pilot study is anticipated in 1948.

Assistance was given to the Bureau of Health Education in the production of a series of transcribed educational radio broadcasts on various phases of the subject of foods and nutrition. Thirteen platters have been prepared for the series, each representing the discussion of an assigned subject by an expert.

As previously mentioned, the Council has started the publication in THE JOURNAL of individual chapters of the Handbook of Nutrition. The Council has also published reports and has assisted in the preparation of a considerable number of articles on nutrition. Assistance has also been given in the preparation of reports on educational motion pictures having to do with nutrition. The Council office has cooperated with the work of other departments at the headquarters of the Association and has in return been helped by them.

Public Relations

Good public relations rest squarely on work well done and services performed. This premise has guided the efforts of the Council Office, and until a better basis is offered it will continue to be the chief motivating factor in the Council's activity.

Council Meetings

During the year the Council met twice at Association headquarters. Some of the items of general interest taken up at those meetings were: nitrogen trichloride-treated ("agenized") flour; flour and bread enrichment; fortification of milk with vitamin A; the relative clinical effectiveness of vitamins D_2 and D_3; fortification of skim milk with vitamins A and D; criteria for establishing evidence of the clinical effectiveness of protein supplements; the use of vitamins in industry, and iodized salt.

Council on Industrial Health

Interest in the health and welfare of industrial workers remains at exceptionally high peacetime levels as expressed in current activity in the government, in business management, in labor and in the medical and allied professions.

Public Relations

International Industrial Health—The first postwar International Industrial Health Congress will take place in London in the late summer of 1948. Steps have been taken to assure representation from the American Medical Association. Such representation is important because of widespread interest in industrial health practices in the United States. During the past months representatives from almost all European and Latin American countries and from China, India and Australia have visited outstanding installations in this country. All these visitors have been greatly interested in the activities of the Council on Industrial Health and the ways in which an independent medical organization has attempted to improve the health of workers through professional education, organization and cooperation.

Governmental Industrial Hygiene—Government support of industrial hygiene probably stands at the highest levels yet attained during peacetime, both in Washington, D. C., and in many industrial states. The Division of Industrial Hygiene in the U. S. Public Health Service is receiving excellent financial backing, which in turn is reflected in expanding field services, greater help to industrial hygiene bureaus in the states, resumption of laboratory investigations on an expanding and intensified basis and the development of a program of assistance to educational institutions for the training of essential industrial health personnel

Health Service for Federal Employees—Public Law 658 provides that government employees receive emergency treatment of on-the-job illness, preemployment and periodic health examinations, health counsel, referral to private physicians and dentists and a general program of preventive medicine. Surveys of health needs and available facilities have recently been completed in Denver, Kansas City and Chicago by the U. S. Public Health Service as required under this legislation. In each instance the investigation has been conducted after consultation with officers and appropriate committees of affected medical societies, who have been informed about the objectives of the program, the methods of survey and the final recommendations. For example, in Chicago thirty-two federal agencies employ 42,000 persons. The contemplated occupational health program will require thirteen physicians, six dentists, two or three engineers and seventy to eighty nurses working in one principal health center, two subsidiary centers and eighteen departmental health units. The total number of employees who may be affected by this law is indeterminate but may range from 2,500,000 to 4,000,000 persons.

Union-Sponsored Health and Welfare Programs—Growing concern by unions over the health of workers has been dramatized by the Welfare and Retirement Fund of the United Mine Workers of America. Actual and impending medical and hospitalization activities sponsored by unions or jointly supported and administered by labor and management will reach a substantial segment of the industrial population. Both the Council on Industrial Health and the Council on Medical Service have been keenly aware of these developments and their potential effect on medical services and relations.

The Welfare and Retirement Fund of the United Mine Workers continues to attract major interest because of the nature of financial support and the steps which have been taken to implement it. The appointment of a medical director, the selection of a Medical Advisory Board and the creation of a Health Services Division in the fund are successive steps already completed. The chairman and secretary of the Council on Industrial Health are both members of the Medical Advisory Board. The Health Services Division consists of physicians, dentists, nurses, statisticians and administrators. The main inspiration for activities largely springs from the famous Boone report, although separate and intensive studies have been made of individual union districts as a means for setting up pilot operations. The general intention has been to build on existing facilities and to improve rather than to replace them. Advice has been sought from all quarters having legitimate interest, particularly from government agencies, representatives of medical societies, health departments, voluntary medical service and hospitalization organizations and insurance companies. Considerable attention has been paid to rehabilitation during the period of negotiation between labor and the mine operators regarding activation of the fund. A number of badly neglected medical and surgical problems have been uncovered, and placed under the best available care.

Management Groups—The Chamber of Commerce of the United States has discontinued its Health Advisory Council, one of the subcommittees of which dealt with industrial health. A series of conferences has recently taken place between officers of that organization and the American Medical Association to see how health activity might be improved through proper working relations, especially in local communities. Since local chambers of commerce have demonstrated reliability in promotion and extension of good and dependable industrial health programs, every effort will be made to maintain satisfactory liaison.

Small Plant Programs—There are at present a dozen interesting experiments designed to bring to small industry the same kind of industrial health services which formerly only large industry has been able to support. These projects are being conducted by county medical societies, medical schools and individual physicians. Acceptance by small plants indicates that a definite and substantial need is being met. Some physicians have been concerned about their ethical status in promoting services of this kind to small industry. The Council on Industrial Health has felt that if these plans are well understood by county medical societies and the objectives accurately defined, no serious ethical relationship is involved.

Professional Relations

Field Activities—As usual, field services have been mainly pointed at improving the effectiveness of committees on industrial health in the state and county medical societies. There is still great variation in levels of accomplishment. Many are doing excellent work, others are not. Regional conferences have been held, generally in conjunction with the Council on Medical Service. These regional meetings have been attended by physicians, industrialists, labor leaders and others as a means of stimulating interest in industrial health at community levels.

Salaries of Industrial Physicians—Lack of adequate remuneration is regarded as one of the serious obstacles to attracting able and talented physicians into industrial health work. A study of salaries paid industrial physicians is now under way with the assistance of the Bureau of Medical Economic Research. The Council feels that industrial medicine should be taken off the bargain counter and that, given proper compensation, professional experience should be as stimulating and attractive in industrial medicine as in other medical specialties.

National Emergency Medical Service—Because of unsatisfactory experience in World War II regarding effective use of industrial physicians, nurses and ancillary professional groups, and because modern warfare depends on industry, it is believed that effective liaison should exist between the Council on Industrial Health and the Council on National Emergency Medical Service. Steps have been taken to bring about this desirable relationship.

Occupational Medicine—The headquarters personnel of the Council on Industrial Health are collaborating with the Editorial Board of *Occupational Medicine* in the preparation of general news and comments, book reviews, abstracts of current medical literature and the acquisition of original articles. It is also planned to develop an editorial program reflecting medical relations in industry.

Eighth Annual Congress on Industrial Health—The eighth Annual Congress on Industrial Health was held in Cleveland in January 1948, just preceding the scientific program of the Interim Session of the American Medical Association. The hope that in this way more general practitioners would be attracted to the Industrial Health Congress was not realized. In other ways the meeting was successful, particularly the annual dinner which was attended by the entire membership of the House of Delegates and the officers of the Association.

Scientific Development and Education

Survey of Industrial Medical Education—Nearly all medical schools in important industrial areas have been visited during the past year to determine the extent to which industrial medicine is taught to undergraduates and the facilities available for postgraduate training. In general the results of the survey are most encouraging.

Residency Approval—Regulations governing residencies and fellowships in occupational medicine were approved by the Council on Medical Education and Hospitals and the House of Delegates at the Annual Session in Atlantic City, N. J., in June 1947. Since that time application forms have been prepared and sent to industries likely to be in position to supply training and experience of residency caliber. Certain elements in the requirements for approval need clarification, and additional conferences will be held from time to time to make essential adjustments.

Research and Scientific Development—During the past year an effort has been made to collect all available information about existing facilities for research on industrial health and likely sources of financial and technical support. Investigations in industrial toxicology, industrial physiology and psychology, administrative methods and human engineering are expanding in number and importance. They occupy a prominent place in the research activities of the armed forces, government agencies and universities, as well as the industries themselves. There is great need for coordinating machinery. The Council on Industrial Health is strongly disposed to undertake an activity of this kind, assuming that it can be done reasonably. An alternative suggestion would concentrate this form of service in the National Research Council, although it is not clear that that organization is prepared to do it. Meanwhile, the headquarters office of the Council on Industrial Health acts as a general clearing house for information of this kind as well as for data on industrial medicine and health.

Atomic Energy—Cooperative efforts are being made by the Council on Physical Medicine and the Council on Industrial Health to appoint consultants familiar with the uses of atomic energy in medicine and industry. The safe production of this kind of energy, whether in the manufacture of radioactive isotopes or the ultimate successful development of nuclear fission as a source of usable power in manufacturing and transportation is on all counts the greatest single industrial health consideration at present.

Aluminum in Pneumoconiosis—The joint investigation of aluminum in the prevention and treatment of silicosis is being continued by the Council on Pharmacy and Chemistry and the Council on Industrial Health. A final report will appear shortly, descriptive of the kind of controlled experimentation necessary to determine the usefulness of this substance as a therapeutic and prophylactic agent.

Workmen's Compensation

The National Conference Committee on Workmen's Compensation previously mentioned in annual reports of the Council has been dissolved and its essential activities transferred to committees in the International Association of Industrial Accident Boards and Commissions. Meanwhile, to preserve important contacts developed through this Conference Committee, the Council has requested permission of the Board of Trustees to set up its own group of consultants on workmen's compensation. In this way dependable relations can be maintained with the legal, administrative, insurance and technical groups interested in workmen's compensation.

Rehabilitation

The Council has retained its contact with official agencies concerned with rehabilitation. It has worked closely with the Federal Office of Vocational Rehabilitation, and the program of the agency has been brought to the attention of members of the medical profession through direct mail, at the Annual Congress on Industrial Health and at regional conferences. Contact has been maintained along similar lines with the rehabilitation service of the Veterans Administration. Members of the Council serve in advisory capacities to both these groups. The gap between effective rehabilitation and the institution of definitive treatment of industrial accidents is a matter of great concern both to compensation and to rehabilitation workers. The Council has under consideration an educational program which will emphasize the need for far better integration of convalescent care and rehabilitation beginning as promptly as possible after the occurrence of an accident and continuing through the successive steps toward job restoration.

In 1945 Congress by joint resolution set aside the first week in October as National Employ the Physically Handicapped Week. Since then the President has appointed a committee to promote observance of this week. This committee is now sponsoring legislation which will make available $250,000 annually to be expended by the Secretary of Labor to promote the employment of handicapped persons and the work of the President's committee. There is serious concern that this amount of money will create an agency within the Labor Department that will duplicate services already available in the Federal Security Agency and the Veterans Administration. The Council is greatly interested in this proposal and will keep closely in touch with developments.

Council On National Emergency Medical Service

The House of Delegates of the American Medical Association at its Annual Session in June 1947 recommended to the Board of Trustees the creation of a standing committee of the Board to be known as the Council on National Emergency Medical Service. The Board of Trustees took the necessary action at its meeting on Sept. 4, 1947 to create this standing committee, and the following physicians were appointed to membership:

Dr. JAMES C. SARGENT, Milwaukee, Chairman.
Dr. RICHARD L. MEILING, Columbus, Ohio, Secretary.
Dr. WINCHELL McK. CRAIG, Rochester, Minn.
Dr. HAROLD S. DIEHL, Madison, Wis.
Dr. PERRIN H. LONG, Baltimore.
Dr. HAROLD C. LUETH, Lincoln, Neb.
Dr. STAFFORD L. WARREN, Los Angeles.
Dr. EDWARD L. BORTZ, Philadelphia. } Ex officio.
Dr. GEORGE F. LULL, Chicago. }

After several informal meetings of the Chairman, Secretary and others, the Council on National Emergency Medical Service held its organization meeting at Association headquarters in Chicago Dec. 11, 1947.

Organization

The Council is to act as a committee of the whole during regular semiannual meetings to be held during the first week in November and the first week in April. The Chairman is empowered to call special meetings if and when required. Between semiannual meetings the executive committee is to act in behalf of and for the Council, holding such meetings as may be required. The executive committee is composed of the Chairman, the Secretary, the ex officio members and one other member appointed by the Chairman for a period of one year.

The following subcommittees for the purpose of study of specific problems have been appointed by the Chairman: (1) Allied Health Agencies; (2) Professional and Lay Education on Special Weapons; (3) National Disaster Relief; (4) American Medical Association Directory Service for Emergency Use; (5) Regional and State Subcouncils, and (6) Scientific Exhibit.

The Council, with the sanction of the Board of Trustees, plans to meet with and to consult with the various agencies of the National Military Establishment as well as such other agencies, organizations and persons as may be interested in national defense.

Consultants

The following physicians have been appointed to serve as Consultants to the Council: Dr. James E. Paullin; Dr. Hugh J. Morgan; Dr. Hans H.F. Reese, and Dr. George M. Lyon.

Purpose

The purpose of the Council on National Emergency Medical Service is conceived to be the development of proper, logical and timely advice for presentation to the Board of Trustees of the American Medical Association with reference to the medical and associated problems involved in the mobilization of the nation's armed forces, industry, agriculture and civilian population in time of a national emergency. It is necessary, therefore, to make a continuous, planned and coordinated study of the numerous problems associated with the mobilization of the nation's manpower, resources and materials, and to maintain direct and continuous contact with other civilian and governmental medical and allied organizations and agencies as well as with those agencies and organizations involved or responsible for the planning and operation of the national defense in its broadest term.

Scope

An outline of the scope of the Council on National Emergency Medical Service follows:

1. National Defense Planning related to medical, health and sanitary services:
   (a) Armed Forces:
      (1) Medical personnel procurement program
      (2) Reserve program in Army, Navy and Air Forces
      (3) Medical officer ratio to military strength
      (4) Industrial College of the Armed Forces planning
      (5) Utilization of available hospital facilities in time of national emergency
   (b) Civilian Population:
      (1) General medical and health care of urban and rural population
      (2) Medical and health problems in industry
      (3) Consideration of medical education, research and special groups
      (4) Plans for production, stockpiling and allocation of medical material and supplies
2. Liaison and joint planning with allied medical and health agencies regarding personnel, facilities and material required in time of national emergency
3. Distribution of medical and allied personnel in an all-out national emergency
4. Plan for national disaster relief program
5. Program of education with reference to the special weapon type of warfare (atomic bombs, rockets, bacteriologic warfare, chemical warfare, etc.)
6. Coordination with councils, committees and agencies of the American Medical Association for planned unified action in time of national emergency

Public Relations

All planned publicity and policy releases of the Council are channeled through the office of the Secretary and General Manager of the Association.

Activities

On Jan. 6 and 7, 1948, the executive committee of the Council held conferences in Washington, D.C., with the Secretary of Defense, the Chairman of the National Security Resources Board, the Secretary of the Navy and the Secretary of the Air Forces.

In response to invitations by the Council, representatives of the Departments of the Army, Navy and Air Force and of the Office of Selective Service participated in the regular autumn meeting of the Council held at Association headquarters Dec. 11, 1947.

The Subcommittee on Allied Health Agencies stimulated a survey of the medical colleges of the United States on the part of the Association of American Medical Colleges and the Council on Medical Education and Hospitals to evaluate the various proposals for increasing the enrolment of medical students in time of peace and in time of emergency.

The Subcommittee on Professional and Lay Education on Special Weapons proposed to the Atomic Energy Commission and to the Secretary of Defense the training by observation of a select group of physicians chosen from metropolitan and strategic areas in the medical aspects of the use of atomic weapons.

The Subcommittee on National Disaster Relief conducted a poll of the governors of the forty-eight states and of the territories with regard to the present status of the state disaster service in each state. At the same time the respective state medical associations were advised of the action taken.

The executive committee of the Council has prepared an answer to a request of the Committee on Civilian Components, Office of the Secretary of Defense, for "the views of the American Medical Association on the subject of the organization and training of the civilian components of the Army, Navy and Air Force."

Spring Semiannual Meeting

The regular spring semiannual meeting of the Council was held in Chicago April 5 and 6, 1948. This meeting, falling as it did at a time of great public and professional concern over the deteriorating international situation, was of great importance, and many of the general officers, members of the Board of Trustees and directors of Councils and Bureaus of the Association participated. Representatives also were invited and appeared from thirteen national allied medical and health organizations.

The meeting was devoted to three half-day panel discussions followed by a final half-day business session, which was open to and was attended by a large number of the state associations' representatives. There were panel discussions on medical aspects of special weapons warfare; civilian medical, health and sanitary problems in a national emergency and the programs of governmental and civilian agencies to meet them, and medical, health and sanitary problems of the military establishment in the event of a national emergency. The panels were participated in by members of the Council and representatives of the Veterans Administration, the National Academy of Sciences, the Society of Medical Consultants of World War II, the American National Red Cross, the National Security Resources Board, the Departments of the Army, Navy and Air Force, the U.S. Public Health Service and the Office of Selective Service Records.

The proposed program of the Office of Selective Service Records, outlined before the Council, includes plans to revive the medical examination of inductees at draft board level much as prevailed throughout World War II. Since this program is intended to prevail under peacetime operation of the proposed Universal Military Training law and fails to carry a provision for remuneration to physicians who serve the local examining boards, the Council believes that there should be a determination of the policy of the American Medical Association on the question of remuneration for medical examinations at Draft Board level.

In the course of the semiannual meeting an informal conference was held with representatives from the thirteen national medical and health organizations that had been invited to participate. Much discussion centered about the many phases of national defense of common interest to these organizations and about the need for cooperative planning and joint action. The council favors the establishment of a liaison agency for joint national defense planning by and between the American Medical Association and the Advisory Board for Medical Specialties, American College of Physicians, American College of Surgeons, American Dental Association, American Hospital Association, Catholic Hospital Association, American Protestant Hospital Association, American Nurses Association, American Pharmaceutical Association, American Public Health Association, American Veterinary Medical Association and Association of American Medical Colleges.

The National Security Act of 1947 was enacted shortly after the House of Delegates approved the creation of the Council on National Emergency Medical Service in June 1947. The act provides for the establishment of a National Security Resources Board to consist of certain stipulated cabinet members together with heads of federal departments and agencies to be added at the option of the President, the board to be charged with the mission of advising the President regarding the coordination of military, industrial and civilian mobilization. The Departments of the Army, Navy and Air Force have suggested the establishment of a National Emergency Medical Board as an agency of the National Security Resources Board to include representation from the American Medical Association; the Council on National Emergency Medical Service urges that all possible effort be expended by the Association, including the immediate enlistment of the efforts of other medical and health organizations, to the end that such a National Emergency Medical Agency be appointed within the structure of the National Security Resources Board.

The Council was informed at its meeting in April that the director of the Civil Defense Sector of the Office of the Secretary of Defense will in the immediate future appoint a medical advisor and desires that this advisor be provided with both military and civilian medical consultants, one of whom would represent the American Medical Association. The Council recommends that early consideration be given to the selection of an appropriate representative.

A bill dated April 3, 1948 to provide for the common defense by increasing the strength of the armed forces of the United States and for a universal military training program is at present before the Senate Committee on Armed Services. In making special provision for the drafting of physicians up to the age of 45 years this bill, in the opinion of the Council, proposes a type of legislation that is on its face highly discriminatory and coercive if not actually unconstitutional. The Council believes that the recent wartime requirements of medical military personnel were met promptly and more than adequately by the patriotic response of the members of the medical profession without the necessity of any such compulsive legislation and that the experience of the recent war years served to bring into sharp focus the great danger that would lie in investing in the military establishment, rather than in a proper civilian board, the important functions of determining the relative needs of the military establishment and the civilian population and of distributing the limited medical manpower of the nation to meet those needs in time of war or the threat of war. It is therefore the considered opinion of the Council on National Emergency Medical Service that immediate action should be taken committing the

American Medical Association in opposition to Title I Sec. 105 (0) of the proposed bill, and that all possible effort should be expended, including the immediate enlisting of the efforts of the American Dental Association and all other organizations vitally interested in the nation's health, to expunge such discriminatory elements from this or any other proposed legislation relating to the drafting of the medical manpower of the nation for military purposes.

Through its conferences and deliberations, the Council on National Emergency Medical Service has arrived at certain conclusions which it believes might be accepted as basic principles to govern the American Medical Association and all who represent it in the medical, health and sanitary aspects of national defense and the expansion of the military establishment under the threat of a national emergency. These principles are:

1. The medical manpower of the United States is a resource vital to the life of every man, woman and child in the nation. It is a resource fixed in quantity beyond the possibility of rapid expansion.

The services of physicians must be carefully conserved and judiciously allocated in time of war to insure adequate medical, health and sanitary care for all Americans, whether in or out of uniform.

2. An extremely broad and painstaking survey of the use made of medical manpower within the military establishment during World War II revealed a substantial overprocurement of civilian physicians by the military establishment. Call-up to duty long in advance of need, the medical overstaffing of units, prolonged periods of complete inactivity in pooling areas and inordinate delay in separation from service are wasteful of medical talent and can be greatly minimized by improved logistics, by air and other rapid transport and by more fluid interchange of medical officer personnel between branches of the service. Protracted military indoctrination and assignments to strictly nonmedical duty should be completely eliminated.

Substantial reduction in the medical personnel requirements of the armed forces over that employed in World War II can be accomplished and medical health and sanitary care of the services actually improved by better use of the medical talents of medical officers.

3. Great wastage of medical talent is involved in duplicating the physical examination of inductees at the draft board and recruiting centers and again in reception centers.

A single physical examination of recruits and inductees should be made to suffice.

4. In the light of the experience of those countries suffering the effects of serious bombing during the last war and giving heed to the threat of the atom bomb, the need of planning adequately for the medical health and sanitary care of the civilian population becomes a matter of first magnitude since the very life of the nation may hinge on it.

It would be completely unsafe and a serious threat to our national war effort to lower needlessly the ratio of physicians to civil population anything like the 1 to 1,500 ratio reached during the recent war.

5. The making of a physician requires long, unbroken years of instruction and training. The periodic annual graduation of the usual class of new physicians could not be allowed to pass a year or two without seriously threatening the national health for a generation. Especially is this true if war is to deplete the ranks of the profession.

The deferment of properly selected and duly registered premedical and medical students together with a staff of essential teachers is absolutely necessary to the future health of the nation. The same holds true for scientists engaged in important medical and allied research.

6. The present civilian medical component procurement programs of the several branches of the military establishment are highly competitive, closely confined to areas of medical teaching and research and completely unrelated to one another or to the need for deferment from military duty of the personnel they seek to enlist.

There is great need for interservice coordination in the procurement of reserve medical officers and for avoiding recruitment among essential teaching and research personnel.

7. In the event of war or the threat of war requiring medical personnel in numbers beyond those voluntarily enlisting, whatever the program of procurement of additional physicians may be, that program should in all fairness take into account the obligation that students, deferred and taught at public expense during the recent war years, have to their government and it should take into account the sacrifices already made by those physicians who served during the recent war.

Except as age, infirmity or absolute irreplaceability may forbid, the call to military duty should be in the following order of priority:

(a) Those recent graduates who were enrolled in A.S.T.P. or V-12 programs who have not completed their obligated tours of duty as medical officers and all others who were deferred by Selective Service to continue their medical education; (b) other physicians who did not serve in World War II, and (c) those physicians who served the least in World War II.

8. During the recent war many physicians were required to spend four, five and six years of their lives separated from their families and completely dislocated from their practice. At the same time many able bodied physicians without important reason to be excused from service remained at home to reap the rich harvest of an expanded practice.

In the event of war or threatened war requiring the procurement by the Military Establishment of medical officers from civilian life, provision should be made for their replacement after a reasonable tour of active duty by others from civilian life.

9. Within the limits of administrative possibilities, civilian physicians drawn into the Military Establishment should be rotated between combat and rear areas in an equitable manner.

Bureau of Health Education

The year 1947 was anticipated as a postwar year when many of the difficulties due to war might reasonably be expected to have been overcome. Actually it was one of the most difficult years the Bureau of Health Education ever has experienced.

Personnel

The greatest difficulty experienced during the year was the personnel problem. To fill the vacancies which occurred during 1947 it was necessary to obtain twenty-four new employees, of whom sixteen left during the year. In addition to a ruinous turnover, which implies frequent and prolonged vacancies and much loss of time training new employees, it was necessary to replace one full time man with two college boys, each working half time. All this has greatly handicapped the work of the Bureau and thrown a severe burden on the steady and reliable employees.

The Director of the Bureau was the recipient of the 1947 Elisabeth Severance Prentiss Award for Outstanding Achievements in Health Education, given annually by the Cleveland Health Museum. The award was presented at the annual civic luncheon of the Museum at Cleveland, Nov. 17, 1947. The award consists of a bronze plaque and a certificate. The presentation and response were broadcast on a nationwide network of the Mutual Broadcasting System.

Bureau Publications

The Bureau reviewed twenty-four books for THE JOURNAL and twenty-one for *Hygeia*, and prepared thirty-two other contributions to THE JOURNAL in the form of editorials, radio announcements, articles and news items, as well as seventy-four for *Hygeia* such as manuscripts, questions and answers, items for Mothers' Column and for Teachers' Helps. Eight news items were submitted for the Secretary's letter.

The Bureau originated forty-two articles which were published in periodicals other than those of the American Medical Association. Advice and consultation on manuscripts was furnished five organizatoins.

Radio

The year 1947 marked the greatest activity of the Association in radio and was notable for a fundamental change in policy.

Network Programs—In addition to the usual network broadcasts on the National Broadcasting Company, the Association provided for two additional network programs, one on the Mutual Broadcasting System and the other on the American Broadcasting Company. The American Broadcasting Company negotiations failed, but a program was established with Mutual, opening February 17 and continuing past the end of 1947.

The Mutual Broadcasting System program, "Stephen Graham, Family Doctor" was broadcast on Sundays at 2 p. m. Eastern standard time during most of its run. Despite the fact that it was a program of high quality and broadcast at a relatively favorable hour, it attracted little audience mail and relatively little comment which was relayed back to the office. When the original twenty-six weeks ran out, the program was extended another thirteen weeks by use of the funds intended for the American Broadcasting Company broadcast, which meanwhile had failed to materialize.

The fundamental change in Association policy consisted in making the network broadcasts of the Association available for commercial sponsorship. Following is the list of acceptable sponsors:

1. Automobile manufacturers, dealers or trade associations.
2. Oil and gasoline manufacturers, dealers or trade associations.
3. Furniture manufacturers, dealers or associations.
4. General merchandising organizations, exclusive of foods, drugs or cosmetics.
5. Life insurance companies or associations.
6. Lumber and building supply companies or associations.
7. Railroad, aviation, bus, steamship or other transportation associations or companies.
8. Book publishers, particularly of medical books.
9. Builders, contractors and building material organizations.
10. Trade associations, not specifically named, except those having to do with food, drugs, cosmetics, pharmaceuticals, biological or surgical supplies, tobacco, alcohol or finance.
11. Accident, health, fidelity and other insurance agencies, companies or associations.

The authorization for commercial sponsorship came when the National Broadcasting Company series was almost finished. The Mutual series was extended thirteen weeks by the Association and six additional weeks by Mutual in the hope of making a sale. It appears, however, that selling the American Medical Association program is not going to be simple. The sponsors with a natural interest in the program are excluded for policy reasons, since it seems inadvisable to enter into a commercial radio agreement with any commercial organization whose products or services might come before any of the Association's scientific councils for acceptance, review or criticism. Many of the most desirable sponsors, from the point of view of the Association, have existing radio contracts which will not soon be terminated.

Radio Transcriptions—The electrical transcription activity now grows without stimulation. The large number of broadcasts indicates the interest taken by local agencies in the platter service. During 1947 the American Federation of Musicians announced the termination of musicians' services for recordings as of Dec. 31, 1947. This necessitated the making of a series with music in December which normally would have been made in 1948. The "Radio Handbook" produced in 1946 has had wide distribution and is proving exceedingly useful.

Special Broadcasts—Under the direction of the Bureau of Health Education, eight network programs connected with the Centennial Celebration of the American Medical Association at Atlantic City, N. J., were broadcast during the week June 7 to 14. Great interest was evidenced in the Centennial religious observance program broadcast over the National Broadcasting Company's network on Sunday, June 8, by Msgr. Fulton J. Sheen, Rabbi Joshua Loth Liebman and Dr. Ralph C. Hutchison. A reprint containing the three sermons was made available by the Bureau of Health Education in response to numerous requests. The sermons were also made available on phonograph records in an album, of which twenty sets were distributed in 1947.

Three radio programs were broadcast by staff members of the Bureau in local areas where they attended meetings.

Special Award—At the seventeenth Institute for Radio in Education held at Ohio State University the eleventh American Exhibition of Education Radio Programs was sponsored. The American Medical Association program, "Doctors, Then and Now," received the first award in its classification, Broadcasts by National Agencies. A previous Institute awarded a similar honor to the American Medical Association—National Broadcasting Company program, "To America's Schools—Your Health," in 1938.

Television

This health education activity of the Bureau was continued with resumption of program presentation in the late fall of 1947. During the summer, a "Television Handbook" was prepared and issued by the Bureau. In this the possibilities of television as a medium for health education were considered and twenty-eight programs presented by the Bureau were summarized. On resumption of this activity, weekly presentations were inaugurated in place of the original once-every-two-weeks plan. During 1947 the majority of the programs were in the nature of "spot" news presentations. Material for these was taken from the weekly clip sheet published by the Association. The technic involved utilization of an appropriate film background for orientation of the viewing audience. In some instances sound films were used, while in others special scripts were prepared to be read over the silent film. This was given added variety by introduction of discussion between the television master of ceremonies and a physician to simplify as much as possible the technical aspects of the medical subject. Included among subjects presented in this way were rabies, anthrax, cancer, brucellosis, cost of medical care, child health care and the plight of the Navajo Indians.

Hygeia Loan Collections

A further slight increase in requests for *Hygeia* loan collections prepared by the Bureau of Health Education was observed. Eighty-seven such collections were sent out during the year as compared with eighty-two in the previous year. During the year the entire set of loan collections, dealing with fifty-five different health education subjects, was revised and reorganized extensively. The trend away from physician utilization of this service was reversed in 1947. Requests for loan collections came from fifty-eight physicians, whereas only thirty-eight physicians employed these in 1946. This can be construed as encouraging evidence that local civic organizations are recognizing more fully the importance of the physician as a source of reliable health information for the general public. Twenty-one requests came from lay persons working in the field of health education, and eight were received from nurses. The loan collections were sent to twenty-five different states and to Canada. Subjects most in demand were outstanding medical advances, cancer, alcohol and tobacco, progress in preventive medicine and sex education.

Health and Fitness

The end of 1947 marks the first full year of operation of the Health and Fitness Division within the Bureau of Health Education. The establishment of this work as an integral part of the functions of the Bureau of Health Education was an added step forward in the efforts of the American Medical Association to contribute to the promotion of health.

While the Division has been concerned with health and fitness problems of the preschool child, the school child, college students and adults, it has become increasingly evident that the most productive avenue of approach is to be found in working with those groups concerned with the health and fitness of the school child. The source file which was prepared as one of the first assignments of the Consultants, Drs. Dean F. Smiley and Fred V. Hein, has continued to grow and develop. Many organizations and agencies, including state departments of education and state departments of health, are now making it a regular policy to send copies of new materials to the Division to replace those within the files of the Bureau.

Correspondence related to problems in the development and expansion of health and physical education now comes regularly to the Division from nearly all the states. A considerable portion of the Consultants' time is required to answer such inquiries and to review materials concerned with curriculum planning and program development in the areas of school health and physical education.

A series of "Suggested Discussion Topics for Teacher Aids" to accompany each issue of *Hygeia* are prepared. These materials are being widely utilized in connection with the use of *Hygeia*, The Health Magazine, as a source aid for health education in the secondary schools. A considerable number of films and other audiovisual aids for use in school health and physical education instruction are reviewed.

Legislation relative to school health and physical education was studied and the proper department of the Association advised in regard to the nature and content of projected bills. With the approval of the Board of Trustees, the Consultants have participated in the work of many committees as members or otherwise.

A series of thirteen radio transcriptions on health and fitness under the title, "That Wonderful Feeling," prepared late in 1946 is continuing to be widely used by state and local medical societies and other groups having the approval of the medical society. Three television programs on health and physical education were broadcast over station WBKB during the year. A brochure entitled "Teacher Aids" for use in connection with the "Health Heroes" series—transcribed radio programs—was prepared. Over a thousand copies have been distributed, and the material is being used in a comprehensive statewide program in Tennessee.

The Consultants participated in working sessions, gave talks at health and physical education conferences or other group meetings in twenty states during the year. These meetings included those of state and local departments of health, medical societies, education departments, medical auxiliaries and combined meetings of these and other groups. In October a Conference on the Cooperation of the Physician in the School Health and Physical Education Program was held at the Moraine Hotel, Highland Park, Ill. State departments of education, state departments of health, state education associations, state medical associations and national voluntary health agencies were invited to send delegates to the meeting. One hundred and twenty participants, representative of some ninety agencies or organizations, came from thirty of the states and one of the territories to attend the Conference. Twenty-six consultants drawn from the fields of public health and public education and the professions of medicine and education acted as discussion leaders. The purposes of the Conference were (1) to develop plans for implementing within the various states the health service provisions of the report, "Suggested School Health Policies," made in 1945 by the National Conference for Cooperation in Health Education; (2) to provide for interchange of information regarding the patterns of school health programs and the results of school health studies being carried on in various states; (3) to define the role of the physician in relation to the health aspects of school physical education and athletics, and (4) to suggest practical methods for providing preservice and inservice education programs for school health personnel. It was judged desirable to direct the work of the Conference to pointing up practical ways and means of carrying out recommended policies at state and local levels.

Drs. Smiley and Hein contributed material to the revised edition of "Health Education" published by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association and also edited the manual "Health Appraisal of School Children". Dr. Smiley has been appointed to membership on the Joint Committee and elected as Secretary for the coming year. The report of the Highland Park Conference entitled "Physicians and Schools" is now in print. Numerous requests and orders for the printed report are being received.

A heavy schedule of engagements for participation as discussion leaders at state school conferences and regional conferences has been developed running through October 1948. Because of the schedules undertaken and the limited time available, some invitations to participate in similar meetings have had to be refused. It appears wise at this time that the Consultants direct their limited efforts in this vast field of health and fitness to those areas where there is already organization which will make possible the most direct and immediate action. Through school and college contacts almost one third of the population can be directly influenced. At this level the work is especially fruitful, since the groups concerned will include the future parents and community leaders.

Pamphlets

Fifty-three new pamphlets were added during the year to the Bureau's list of publications, ten were completely revised and redesigned, twelve were revised in text and sixteen were discontinued. Distribution of Bureau publications through the Order Department was 256,725, and 46,450 reprints were sold directly to quantity purchasers, making a total of 303,175.

Before being reordered, each pamphlet is evaluated and then discontinued or revised, as recommended. For example, all five of the popular sex education pamphlets by Dr. Thurman B. Rice were revised. Two mental hygienists at the University of Illinois were appointed to review this popular series of sex education articles. The Bureau then coordinated the resultant suggestions with the author's comments and recommendations for the next edition of each pamphlet.

Art work in the pamphlets was increased, both in those recommended for reorder and for new pamphlets, and typography was modified in accord with modern trends.

Bureau of Investigation

During 1947 the Bureau of Investigation continued to function in a fact-finding capacity and in the dissemination to interested persons and groups of information on "patent medicines" and quacks, on fads and faddists and on frauds, either of a medicinal or a cosmetic nature. Inquiries regarding cosmetics, however, were turned over during the latter part of the year to the secretary of the Committee on Cosmetics of the Council on Pharmacy and Chemistry.

On July 2, 1947 Mr. Bliss O. Halling, Acting Director of the Bureau, died suddenly. He had been assistant director from 1914 to 1942, except for the period when he served his country in the first World War. His position was not filled during the year. The work was, however, carried on by the clerical force under the guidance of Dr. Austin Smith, Secretary of the Council and Pharmacy and Chemistry. On Jan. 1, 1948 Mr. Oliver Field assumed direction of the Bureau. Plans are being formulated to expand the *reporting functions, with the idea that this will result in increased use of the informational facilities.*

Inquiries

Statistically, the Bureau performed in much the same manner as in the previous year. Approximately 3,400 letters covering 4,500 subjects, representing a slight gain over 1946, were answered.

The number of inquiries was about evenly divided as between physicians and laymen. Others included inquiries from better business bureaus, newspapers and periodicals, radio stations, governmental agencies, students and teachers. The ten subjects most often inquired about during 1947 were hair preparations, "obesity cures," cosmetics, "cancer cures," "diabetes cures," "aspirin," laxatives, vitamin preparations, "headache cures" and habit-forming agents.

The compilation of facts on persons and products is augmented to a certain extent by some of these inquiries. The Bureau constantly seeks authentic data on new preparations, new promotions, new departures from the field of ethical practice and new approaches by known charlatans in their appeals to ailing persons. Details of encounters with licensing or other regulatory officials on the part of such charlatans, which at times may be regarded as local news, are always welcomed.

Lay persons who believe they have "cures" for serious ailments frequently write the Bureau. During the year many such persons were informed of conditions imposed before consideration can be afforded such "cures." It is interesting to note that none ever supplies the evidence requested.

Cooperation With Other Agencies

During the year there was much cooperative effort in the exchange of information on nostrums, fakes, therapeutically useless devices and other items of mutual interest with the better business bureaus and state and federal regulatory agencies having jurisdiction in such matters. Considerable assistance was given, also, to feature writers in furnishing material for magazine articles on quacks and nostrums. Much time was spent with advertising officials of newspapers and radio stations and others who requested information and criticism of "patent medicine" advertising before acceptance for publication in the press or for broadcast purposes.

Contributions to the Journal

In 1947 twelve columns of material were contributed to The Journal by the Bureau of Investigation. For the most part, the contributions included reports of regulatory actions by governmental agencies, particularly the Food and Drug Administration, the Federal Trade Commission and the Post Office Department, against persons and firms exploiting drug products without regard for the truth of the claims made.

Other Services

The Bureau's lantern slides and film strip dealing with the nostrum evil and quackery were still available to physicians and educators who might desire to use them. However, demand for these items appears to have decreased.

The Bureau seeks to widen its facilities in the matter of furnishing propaganda on quacks and nostrums. Members of the profession particularly, and the general public as well, are invited to use the constantly increasing sources of information and facts that have accumulated in the files of the Bureau. Physicians are urged to suggest to science teachers and others that the Bureau can assist them in furnishing facts for school or lecture use.

Bureau of Legal Medicine and Legislation

Since the last report of the Bureau of Legal Medicine and Legislation was submitted, one member of the staff, Mr. T. V. McDavitt, has been transferred to the Bureau of Industrial and Personnel Relations and the services of Mr. E. J. Holman have been secured as a replacement. Mr. Holman is a member of the Bar of the State of Kansas, a former member of the legislature of that state and a former judge of the City Court of Leavenworth, Kansas.

For a number of years there has been unnecessary duplication in the contents of the report of the Bureau and that of the Washington Office of the Council on Medical Service. Both have presented factual analyses of federal legislation of medical concern, resulting not only in a duplication but having a tendency to confusion, because the two reports have not always been considered by the same reference committee of the House of Delegates. After discussing the matter with the Secretary and General Manager, and with his concurrence, this report of the Bureau and future reports will omit the routine, detailed and factual analyses of medical bills in Congress, leaving such analyses to be presented in the report of the Washington Office of the Council. The Bureau will, however, submit special comments on particular developments in Congress as the occasion seems to justify.

Local Public Health Units

The House of Delegates has recorded its approval of federal aid to assist the states in the development of local health units. During 1947, several drafts of legislation were prepared for the Association of State and Territorial Health Officers anticipatory to the introduction in Congress of a bill to assist the several states in the development and maintenance of local health units organized to provide basic full time public health services and to assist the states in the training of personnel for local health unit work. In the fall of 1947 a draft of this legislation was considered by the National Congress of Parents and Teachers at a meeting held in Washington, D. C. Following this consideration, the draft was approved by that organization. At this same meeting, that association adopted resolutions committing itself to a vigorous campaign to promote the enactment of the legislation. The National Congress of Parents and Teachers has appealed to the American Medical Association for its support.

On February 20, Senator Saltonstall, of Massachusetts, for himself and for Senator Cordon, Oregon, and Senator Hill, Alabama, introduced bill S. 2189 based on the draft prepared for the Association of State and Territorial Health Officers and approved by the National Congress of Parents and Teachers. To the extent that this bill will provide federal aid in the development of local health units, it conforms to the policies adopted by the House of Delegates. It would authorize the appropriation annually of as much federal money as is necessary, which will be allotted to the several states that have developed plans and submitted them to the Surgeon General of the United States Public Health Service for his approval. Attention should be directed, however, to the fact that the bill as now phrased gives no assurance that the local health departments to be developed under it will not provide care for the sick. A local public health unit within the meaning of the bill is defined to mean a governmental authority of a local area authorized to provide in such area "basic public health services." (Sec.(3) (d). Another section of the bill, Section 5 (b)(4), permits the Surgeon General of the Public Health Service by regulation to prescribe the "types of health services" which shall be considered basic public health services. Before taking this action, the Surgeon General will be required to consult with a conference of state health officers, but he is not required to accept the recommendations of such state officials. It is entirely within the realm of possibility, therefore, that the Surgeon General might define public health services in such a way as to embrace personal health services other than preventive. Such broad authority should not devolve on a federal administrative officer, and the bill itself should define what shall constitute such services.

Dr. Haven Emerson, chairman, Subcommittee on Local Health Units, Committee on Administrative Practice, American Public Health Association, has stated that the six basic functions of a local health department include:

1. Vital statistics, or the recording, tabulation, interpretation and publication of the essential facts of births, deaths, and reportable diseases.
2. Control of communicable diseases, including tuberculosis, the venereal diseases, malaria, and hookworm.
3. Environmental sanitation, including supervision of milk and milk products, food processing and public eating places, and maintenance of sanitary conditions of employment.
4. Public Health laboratory services.
5. Hygiene of maternity, infancy and childhood, including supervision of the health of the school child.
6. Health education of the general public as far as not covered by the functions of departments of education.

If S. 2189 were ammended by adding a definition "basic public health services" to include the foregoing functions and to exclude "the care of the sick" as a function except when that care is necessary for the protection of the health of the community, the legislation would in principle, it would seem, conform to the policies adopted by the Association and would merit its support.

Inequities in Income Structure
Pension Plans for Physicians

There is a growing concern over a number of inequities in the federal income tax structure affecting taxpayers engaged in a business or profession as sole proprietors or as partners.

1. It has been pointed out that it is possible for a taxpayer who operates a corporate business "to set aside in his years of productive activity to meet his requirements in the closing years of life. In most cases, he need only draw enough from the business to cover his personal living expenses plus personal income tax. The rest of the business earnings are subject to a corporate tax rate ranging from 21 per cent to 38 per cent, depending on the amount of earnings. This fairly modest tax is to be contrasted with individual income taxes which are payable under graduated rates attaining approximately 53 per cent at $20,000, 60 per cent at $30,000, 68 per cent at $40,000, and 84 per cent at $100,000."

It is not possible for certain groups, such as physicians, lawyers and dentists, to practice as corporations; hence, such groups are subject to the higher tax rates. It has been suggested that the Internal Revenue Code be ammended to permit, in effect, these groups to take advantage of the lower corporate rates with regard to income derived from practice as distinguished from income derived from investment. This proposal has been referred to as the "Bard plan" and is now before the Eightieth Congress in the form of a bill introduced by Representative Church, of Illinois, as H. R. 5143.

2. Under the pension trust provisions of the Internal Revenue Code, a corporation within certain limitations may deduct in the computation of its federal income taxes sums expended in establishing a pension program for officers and employees. A partnership is accorded a similar privilege as far as employees are concerned, but the cost of a partnership pension program for the partners themselves is not deductible. Nor can a taxpayer in unincorporated business for himself set up a program to provide old age security after his productive years are spent and deduct the cost of it.

A proposal is being discussed for an amendment or amendments to the Internal Revenue Code to eliminate this inequity. No bill has as yet been introduced in Congress to put into effect this proposal.

3. A third suggestion has been offered which has become known as the "Silverson plan." This in effect will permit the taxpayer to purchase special government bonds up to a specified amount each year and deduct the cost in computing his federal income taxes. These bonds would be nonnegotiable and would be subject to redemption either at any time after the attainment by the taxpayer of age 60 or at any time after the death of the taxpayer and would be subject to income tax when redeemed.

These proposals have been discussed over a period of years with representatives of the American Bar Association and other national organizations and with the chief of staff of the Joint Committee on Internal Revenue Taxation. More recently, the Association of the Bar of the City of New York invited representatives of a number of national and state organizations to attend a conference in New York to explore further the desirability of proposing the suggested amendment. The invitation to the American Medical Association was received too late to permit its acceptance, but a second conference was called in February 1948 which was attended by the Director of the Bureau of Legal Medicine and Legislation and the Director of the Bureau of Medical Economic Research. Other meetings will be scheduled in the near future.

The Board of Trustees has recorded its approval in principle of the proposal that physicians practicing as sole proprietors or as partners be permitted, with deduction of costs in computing income taxes, to formulate pension programs for themselves, provided a reasonable ceiling be placed on the amount of pension. *It is recommended that the House* of Delegates voice a similar approval.

At its February midwinter session held in Chicago, the house of delegates of the American Bar Association, after referring to the tax inequities now faced by partners and sole proprietors in the matter of pension and other retirement plans, passed the following resolution:

> "RESOLVED, that the American Bar Association authorizes and directs the Section of Corporation, Banking and Mercantile Law and the Section of Taxation to study the subject and recommend a definite proposal or proposals to this Association, as soon as practicable."

The Bureau will contine to keep in close contact with this development, because it seems to have considerable merit.

Epilepsy and Automobile Accidents
The Drunken Driver

At the Annual Session of the American Medical Association held at Kansas City, Mo., in 1936, the House of Delegates authorized the appointment of a Committee to Study Problems of Motor Vehicle Accidents. Such a Committee was appointed by the Board of Trustees and has functioned since that time in close cooperation with the National Safety Council and other agencies concerned with the prevention of accidents of this type. It has concerned itself, in the main, with the relation of the drunken driver to automobile accidents and has submitted a number of recommendations which have been approved by the House of Delegates. In its 1942 report to the House, the Committee did state that the presence of epilepsy should be sufficient reason for denying a license to a driver and that for practical purposes any person having a permanent condition which may cause temporary unconsciousness should be included in this category.

Prior to 1947, there were laws in only two states, California and New Jersey, requiring the reporting of epilepsy to motor vehicle departments. During the legislative year of 1947, legislation patterned closely after the California law was introduced in Indiana, Iowa, Kansas, Oregon and Wisconsin. It was enacted in Indiana, Iowa, Oregon and Wisconsin.

Correspondence by the Bureau with the American Association of Motor Vehicle Administrators last fall disclosed the fact that that association at its then last annual conference passed a resolution advocating the compulsory reporting of epilepsy. Copies of this resolution were sent to all member states with a copy of the California law, which was suggested as a model. The California law, in brief, requires all physicians to report to the local health officer in writing the name, age and address of every person who has a condition diagnosed as epilepsy or a similar disorder characterized by lapses of consciousness. The local health officer must report in writing to the state department of public health the name, age and address of every person reported to it as epileptic. The state department of public health is then required to report to the state department of motor vehicles the names, ages and addresses of all persons reported as having epilepsy by the physicians and local health officers. Such reports are declared to be for the information of the State Department of Motor Vehicles in enforcing the provisions of the Vehicle Code of California and must be kept confidential and used solely for the purpose of determining the eligibility of any person to operate a motor vehicle on the highways of California.

The laws that have been enacted follow the California pattern in authorizing the state department of health to define the term epilepsy. The most recent definition that has come to the attention of the Bureau was formulated by the State Board of Health of Wisconsin and reads as follows: "An affection of the nervous system characterized by attacks of unconsciousness with or without convulsions." Unfortunately, there do not seem to be any dependable statistics indicating the relation between epilepsy and automobile accidents as compared with such accidents caused by other conditions, such as heart disease and cerebral hemorrhages. In at least two of the states in which legislation of this type has been enacted, California and Indiana, the action of the legislature followed an accident that was a tragedy in one instance, several persons being killed, and that resulted in a near tragedy in the other case.

It has been questioned whether a state department of health should be required to transmit to a motor vehicle department every report of epilepsy received despite the fact that some of the afflicted persons may not be eligible or applying for a driver's permit. As an alternative procedure, the suggestion was offered that the state department of health be required to maintain a card index file of reported cases which could be consulted as occasion demanded. The details of the suggested alternate procedure could be worked out, it would seem, to accomplish the objective without requiring an unnecessary disclosure of confidential information.

The Bureau has collaborated with the Committee to Study Problems of Motor Vehicle accidents in this matter and will continue to do so.

There has been no recent enactment of state laws providing for the admissibility in evidence of chemical tests for intoxication in connection with motor vehicle accidents where it is suspected that the driver at fault was under the influence of alcohol. In 1947 legislation of this type was introduced in Delaware, Florida and Ohio but failed of enactment. A similar bill is now pending in Virginia. All these bills embody the essential provisions of the uniform draft formulated by the National Safety Council, with the aid of this Bureau, several years ago and approved by the House of Delegates. Twenty-three court decisions have come to the attention of the Bureau involving the admissibility in evidence of chemical texts for intoxication. These have been included in a mimeographed memorandum which is available on request. One-hundred copies of it were recently sent to the National Safety Council for use by its Committee on Tests for Intoxication, on which a staff member of Bureau holds membership.

Abstracts of Medicolegal Cases

The Bureau has during the period covered by this report continued to provide THE JOURNAL with abstracts of court decisions of medicolegal interest. In 1932 the House of Delegates authorized the republication of these abstracts periodically in book form. Three volumes have been made available under this resolution. The publication of a fourth volume was contemplated in 1946, but due to a combination of circumstances resulting from the war a delay was unavoidable. The preparation of a fourth volume is now well advanced, and as soon as an adequate index can be completed it will be offered to the members of the medical profession. It will include the abstracts published in THE JOURNAL during the calendar years 1941 to 1946, inclusive. While books of this type do not have an extensive demand, they are unique in their field and constitute, it is believed, a definite contribution to the advancement of knowledge of medical jurisprudence.

A Journal of Legal Medicine

There has been an increase of interest in the field of legal medicine since the war, both in the United States and elsewhere. The Bureau has received recently a request for information that might be of assistance in the organization of a medicolegal department in the Ministry of Justice in Teheran, Iran. A similar request came last year from India, where the establishment of a Forensic Science Laboratory for the Government of the United Provinces is contemplated. From the Medical Defence Union of London has been received a communication asking the collaboration of the Bureau in exploring the desirability of promoting the establishment of a section in the World Medical Association for the discussion of matters of medicolegal interest. These appeals, including one from the chief legal advisor, Public Health and Welfare Section, General Headquarters, Supreme Commander for the Allied Powers, Tokyo, Japan, for assistance in the formulation of an anatomic act for that country, point to an accelerated interest abroad in this particular field.

Here in the United States there was recently held in St. Louis an American Medicolegal Congress under the auspices of the Board of Police Commissioners. The congress was extremely well attended and a number of excellent papers were presented. Much interest was also manifested in the creation of a national organization and in the publication of a journal of legal medicine. The enthusiasm with which these proposals were received, although no final action was taken on them, justifies a belief that the time is opportune for the Bureau in cooperation with the Association's Committee to Survey the Relationship of Medicine and Law to renew consideration of the desirability of promoting a national organization for the discussion of matters having medicolegal aspects and of the publication of perhaps a quarterly journal of legal medicine. The Director of the Bureau and the Chairman of the Committee have on several occasions discussed both proposals but have considered that conditions resulting from the impact of war made it inadvisable to arrive at definite conclusions. More recently, in February 1948, another conference was arranged between the Director and the Chairman, as a result of which a small group interested in the subject have been asked to meet in Philadelphia March 11 further to consider these particular proposals and to explore other avenues that might lead to better application in the United States of medical and allied sciences to legal determinations.

Exhibit on Prevention of Malpractice Suits

The Scientific Exhibit at the Centennial Session of the Association at Atlantic City, N. J. last year afforded space to a number of exhibits descriptive of the work of the various councils and Bureaus at the headquarters office. The exhibit of the Bureau of Legal Medicine and Legislation pictorially suggested courses of conduct designed to prevent or diminish the growing incidence of malpractice suits. This exhibit was well received at Atlantic City and has since been used a number of times at state medical association meetings. It is nonscientific but educational in character and may be obtained from the Bureau of Exhibits on request for state meetings.

Medicolegal Aspects of Artificial Insemination

Artificial insemination is a procedure that is creating considerable interest on the part of physicians, if judgment can be based on the number of inquiries received by the Bureau concerning it. The primary interest as reflected by these inquiries has to do with the legitimacy of the issue when the donor is a person other than the husband of the woman inseminated.

The extent to which artificial insemination is employed in the United States evidences the importance of the questions that are being presented. In an article published in THE JOURNAL for June 21, 1941, the authors gave the geographic distribution of some 9,000 children that had at that time resulted from artificial insemination, in 3,649 of which cases a donor other than the husband was used. These figures were compiled from answers to a questionnaire returned by 7,642 physicians. The question of legitimacy arises because the child, while born in wedlock, is the offspring of the woman and a man who is not her husband. Unless the child is legitimate the husband and his wife must look forward to adoption procedures after its birth to establish its legal status and rights. This course, however, would tend, as one writer has stated, " to destroy the secrecy so desirable in a case of artificial insemination " since " court records are open to all curious eyes."

The medicolegal aspects of this subject are being considered not only in the United States but abroad as well. Several years ago the Medical Defense Union of London, England, at one of its meetings heard a thoughtful paper on this subject presented by its secretary, Robert Forbes, M.D., Ch.B.,J.P. More recently there appeared in the Paris letter in THE JOURNAL a statement to the effect that the problems of artificial insemination were being discussed in France by doctors, jurists, theologians and psychiatrists. In February of this year the Bureau received a letter from the Embassy of Sweden in Washington, D. C., indicating that the government of Sweden had recently appointed a committee to investigate the judicial and medical problems in connection with this procedure, with particular reference to the legal status of the child.

The questions that are being raised have not been adequately answered by any court. The Supreme Court of Ontario, Canada, in 1921 did undertake to discuss some of the aspects of artificial insemination but the discussion was by way of dictum not necessary for the decision reached in the case. A controversy arose in New York last year that afforded an opportunity for the court to remove some of the uncertainties of the legitimacy of the child born as a result of an artificial insemination. Briefly, a wife obtained a separation decree from her husband. The court in granting the decree permitted the husband the right to see at specified times a child born to the wife. The wife objected to the permission on the ground that the husband was not the father of the child, who was born following an artificial insemination. Unfortunately, the court in denying the wife's appeal for an amendment of the separation decree did not file a formal opinion. It did hold that the child had been "potentially or semi-adopted by the husband," that logically and realistically the situation was no different "than pertaining in the case of a child born out of wedlock who by law is made legitimate upon the marriage of the interested parties." The court expressed a disavowal of any intention of passing on "the legal consequences in so far as property rights are concerned in a case of this character."

It has been suggested that the enactment of legislation should be sought to legitimize the child resulting from an artificial insemination. Follow the controversy in New York, a bill was introduced in the Senate of that State providing as follows:

> *A child born to a married woman by means of artificial* insemination with the express or implied consent of her husband shall be deemed the legitimate, natural child of both the husband and his wife for all purposes, and such husband and wife and such child shall sustain toward each other the legal relation of parent and child and shall have all the rights and be subject to all the duties of that relationship including the rights of inheritance from each other. This acts shall take effect immediately.'

A similar bill pending in the Senate in Virginia contains the following phraseology:

> *Children Born as the Result of Artificial Insemination.*--Children born as the result of artificial insemination shall be considered the same as legitimate children for all purposes, if the husband of the mother consented to the operation.

The House of Delegates may well consider the advisability of endorsing in principle the enactment of legislation of this type.

The Bureau has carried on a considerable volume of correspondence with respect to artificial insemination dealing not only with the legitimacy problem but also with the responsibility assumed by a physician who selects or passes judgment on the fitness of a donor. There is under preparation at the present time a statement embodying available information on this subject, which will be produced either in mimeographed or printed form so that physicians may be more easily and promptly advised. Certainly, in artificial insemination the law must be applied to a novel situation and there are few court cases to serve as a guide.

Coroner-Medical Examiner Systems

Since the 1944 report of the Committee to Survey the Relationship of Medicine and Law concerning coroner-medical examiner systems was published, there has been a noticeable manifestation of interest in either the substitution of the medical examiner system for the coroner system or the modernization of the latter system to make it more effective.

The development that took place in Virginia in 1946 deserves particular comment because it may well set a pattern for other jurisdictions where for constitutional, political or other reasons the office of coroner cannot readily be abolished. The 1946 Virginia law had its legislative beginning in a Senate Joint Resolution passed by the General Assembly of that state in 1942, directing the Virginia Advisory Legislative Council to make a study and report on the advisability of abolishing the office of coroner and transferring the duties of the office to medical examiners and law enforcement officers. The Legislative Council, through a committee appointed by it, promptly initiated the study contemplated by the Joint Resolution. It contacted the Director of the Bureau of Legal Medicine and Legislation early in 1943 and was supplied with available basic data on the subject. The Committee to Survey the Relationship of Medicine and Law, through its chairman, Dr. Alan Moritz, gave continuous advice in the formulation of the draft of a bill that eventually was enacted into law. The Medical Society of Virginia collaborated closely in this study and in the formulation of legislation. In 1944 the Legislative Council submitted a report to the Governor and the General Assembly of Virginia as contemplated by the Joint Resolution. This report, however, did not recommend the abolition of the office of coroner, as had been recommended by the Committee created by the Legislative Council, because of a belief on the part of the Council that the recommendations of the Committee would entail too much expense. The Council did suggest certain changes in the existing law, referred to in the report as "minor changes." Following the submission of this report, however, efforts were renewed on the part of representatives of the medical society of the state to develop legislation that would put into effect in Virginia an effective and modernized system for determining the cause of death in cases where crime is known or suspected to have occurred. These efforts bore fruit with the enactment of Chapter 355, Acts of Assembly, 1946. This law created a Commission on Postmortem Examinations, composed of the attorney general, the state health commissioner, the superintendent of state police, the dean of the Medical College of Virginia and the dean of the Medical School of the University of Virginia, all ex officio. This Commission is authorized to appoint a chief medical examiner for the state and to establish and maintain in Richmond, under the supervision of the chief medical examiner, a central office and a laboratory having adequate professional and technical personnel and physical facilities for the conduct of postmortem examinations and of such pathologic, bacteriologic and toxicologic investigations as may be necessary or proper.

The Commission is authorized, if it deem advisable, to enter into a contract with the Medical College of Virginia for the use of certain of its laboratories, its morgue and other technical facilities, and for space in one of its buildings as a central office for the chief medical examiner and his staff. In the discretion of the Commission, the chief medical examiner and his assistant may be made available to the Medical College of Virginia and the Medical School of the University of Virginia for teaching legal medicine and other related subjects. The Commission is authorized to appoint one or more coroners for each county and city in the state. Each coroner is to be appointed from a list of two or more licensed doctors of medicine submitted by the component medical society of the county or city in which the appointment is to be made, or of the district in which the county or city is located. Whenever the death of any person occurs from violence, or suddenly when in apparent health, or when unattended by physician, or in prison or in any suspicious, unusual or unnatural manner the coroner is to be notified by the physician in attendance, by any law enforcement officer having knowledge of such death, by the undertaker or by any other person present. On receipt of such notice, the coroner will take charge of the dead body, make inquiries regarding the cause and manner of death, reduce his observations to writing and promptly make a full report to the chief medical examiner. A copy of the report is to be sent to the appropriate Commonwealth's Attorney.

If in the opinion of the coroner or of the chief medical examiner it is advisable in the public interest that an autopsy be made or if an autopsy is requested by the Commonwealth's Attorney or by the judge of the circuit or corporation court of the city or county where the body is found, such autopsy will be made by the chief medical examiner or by such competent pathologist or toxicologist as may be designated by him for the purpose. It is declared to be unlawful to embalm a dead human body when any facts within the knowledge or brought to the attention of the embalmer are sufficient to arouse suspicion of crime in connection with the cause of death until the permission of the coroner is received. It is likewise declared unlawful to cremate the body of a deceased person until the coroner shall have certified in writing that he has viewed the body and made personal inquiry into the cause and manner of death and is of the opinion that no further examination or judicial inquiry concerning the same is necessary.

The foregoing represent some of the important provisions of the new Virginia Law. Its operation will be watched with considerable interest. Reorganization legislation introduced in the Virginia General Assembly in 1948, and which apparently will be enacted, will abolish the Commission and transfer its functions to the State Department of Health.

In 1947 the medical examiner laws of three states, Maine, New Hampshire and New Jersey, were amended in an effort to make them more effective. The Texas coroner law was substantially changed to improve it, and similar laws were variously amended in seven other states, Alabama, Arkansas, California, Delaware, Georgia, North Carolina and Pennsylvania.

Protection of Medical Research

In 1947 bills were introduced in a number of state legislatures and in Congress designed to impede or prohibit the use of animals in connection with medical research. Bills of this type made their appearance in California, Illinois, Massachusetts, Michigan, Nevada, Pennsylvania and Wisconsin. While some of these bills reached the hearing stage, none was enacted.

In Michigan in 1947 a law was enacted specifically recognizing the need for the utilization of animals in medical research and authorizing the state commissioner of health, aided by an advisory committee, "to regulate and to promulgate rules and regulations controlling the humane use of animals for the diagnosis and treatment of human and animal diseases, the advancement of veterinary, dental, medical and biological sciences, and the testing and diagnosis, improvement and standardization of laboratory specimens, biologic products, pharmaceuticals and drugs."

In New York in 1947 an amendment to the penal code was enacted which specifically authorized the state commissioner of health to approve laboratories and institutions in which scientific tests, experiments or investigations involving the use of living animals may be performed or conducted. The prior law authorized such experimentation only under authority of the faculty of some regularly incorporated college or university of the state, but the commissioner of health had no jurisdiction in the matter.

A number of years ago a staff member of the Bureau developed a draft of a uniform state law affirmatively to authorize the state department of health to approve institutions in which dogs could be used to promote research and providing for the transfer to such institutions of unclaimed impounded dogs. This draft was prepared at the request of the Secretary of the Committee on the Defense of Biological Research of the Federation of American Societies for Experimental Biology. More recently, the enactment of legislation of this type has been sponsored by the National Society for Medical Research.

There was introduced in Pennsylvania in 1947 a bill following substantially the draft prepared by the Bureau. It was not enacted. In 1948 the draft with some modifications was introduced in Massachusetts but favorable action has not as yet been taken on it.

State Legislation in General

The Bureau has continued its study of state legislation of medical interest. Through a legislative reporting service, it promptly receives copies of all such legislation. Brief comments are prepared on the more important bills for publication in THE JOURNAL. Each year a detailed summary is prepared of the important enactments, and this summary is also published in THE JOURNAL. The summary for 1947 was republished in the Bulletin of the Federation of State Medical Boards.

State medical associations are kept currently advised of proposals submitted to the legislatures of their states, and the services of staff members of the Bureau are available, on request, for aid in appraising particular bills. The staff personnel is also being utilized more and more by state medical associations in the development of adequate measures for the protection of health, covering a wide variety of subjects. The Bureau always welcomes the opportunity to be of help and wishes through the medium of this report to express its appreciation for the cooperation it has received from such associations.

Bureau of Exhibits

The Bureau of Exhibits administers the Scientific Exhibit at the Annual Session and Interim Session under the Committee on Scientific Exhibit of the Board of Trustees, presents medical exhibits at meetings of state medical associations and other scientific organizations, maintains health exhibits for fairs and expositions and cooperates with numerous organizations in the dissemination of information concerning graduate medical instruction and health education. Through the Committee on Medical Motion Pictures, leadership is being assumed in the use of motion pictures for teaching purposes.

The Bureau works in close cooperation with the other councils and Bureaus of the Association, preparing and maintaining exhibits for them.

The Scientific Exhibit—Centennial Session

The Scientific Exhibit at the Centennial Session in Atlantic City, N. J., was an outstanding testimony to the popularity of this form of graduate medical instruction. The huge crowds which thronged the aisles during the week extended to the utmost the facilities of the management and the endurance of the demonstrators. Nearly a thousand demonstrators participated in the Scientific Exhibit, and they deserve much credit for their patience and perseverance. Those persons who carried on during the entire week without a substitute to relieve them deserve special mention for their energy.

The significance of the occasion resulted in a large amount of historical material. A group of sixteen exhibits prepared by the Bureau of Exhibits depicted the activities of the Association over a hundred years and showed the work of all the Councils and Bureaus of the Association. Numerous other exhibits dealt with the history of many of the medical specialties.

The Special Exhibit on Fractures was as popular as ever, even though it has been shown at almost every Annual Session over a period of twenty years under the guidance of Dr. Kellogg Speed, Chicago.

The Special Exhibit on Physical Medicine, shown for the second time under a committee of which Dr. Frank H. Krusen, Rochester, Minn., was chairman, included physical therapy, occupational therapy and rehabilitation. Many of the demonstrations included the participation of amputees, hemiplegic persons and those with other disabilities. A platform was constructed in front of this group of exhibits to accommodate the crowds.

The Special Exhibit on Cardiovascular Diseases, organized by Dr. Paul Dudley White, Boston, contained the most inclusive group of exhibits ever presented on this subject. There were seventeen booths covering all phases, with demonstrators in constant attendance. In an adjoining area a question and answer conference on cardiovascular diseases was conducted by Dr. Edgar V. Allen, Rochester, Minn., with the cooperation of the American Heart Association.

The Special Exhibit on Fresh Pathology was presented by a group of competent pathologists, of which Dr. Frank W. Konzelmann, Atlantic City, N. J., was chairman. Specimens were brought in daily by messenger from Philadelphia, supplemented by material from the Atlantic City Hospital.

A group of exhibits on diabetes was arranged by Dr. Howard F. Root, Boston, the highlight of which was a question and answer conference in which outstanding authorities on diabetes participated. The audience filled this room to overflowing constantly throughout the week.

The seventeen sections of the Scientific Assembly each presented groups of exhibits dealing with the various specialties in medicine. These exhibits were selected, however, for their interest to the physician in general practice rather than the specialist. There were three hundred and forty-one applications for space, of which two hundred and twenty-seven were accepted—66 per cent. The largest group was that of the Section on Surgery, General and Abdominal, with twenty-six exhibits; the smallest, the Section on Anesthesiology with six exhibits. A representative to the Scientific Exhibit was appointed by each Section to assist and advise the Committee on Scientific Exhibit in the procurement and selection of material. The representatives gave freely of their time and energy in securing exhibits of exceptionally high caliber.

A miscellaneous group of exhibits included large displays from the United States Army, Navy and Veterans Administration, which were especially attractive.

There were twenty-nine awards, including six medals, eight certificates of merit, eight honorable mentions, six special commendations and one certificate of appreciation. The Committee on Awards, consisting of Dr. Max M. Peet, Ann Arbor, Mich., chairman; Dr. Arthur W. Allen, Boston; Dr. Francis G. Blake, New Haven, Conn.; Dr. William P. Herbst, Washington, D. C.; and Dr. Walter M. Simpson, Dayton, Ohio, performed a herculean task and submitted a report which received unanimous approval.

Motion pictures were shown in three theaters adjoining the exhibits. Ninety-five films were offered, of which sixty were selected after preview by competent authorities. Several of the films were shown in conjunction with exhibits on the same subject.

The Scientific Exhibit—Interim Session

The Scientific Exhibit for the Interim Session held in Cleveland in January 1948, was organized during the autumn months. A relatively short time was available for the task, which was performed in addition to the normal activities in connection with the Annual Session to be held the following June.

There were four groups of special demonstrations. These included the Cancer Detection Center, with an appointment center, an information center and a large group of exhibits presented by the American Cancer Society in connection; clinical demonstrations, conferences and exhibits on dermatology; a series of talks and conferences on diabetes as encountered in the general practice of medicine, illustrated by lantern slides and by patients and accompanied by a group of exhibits with laboratory demonstrations on the determination of blood sugar as a special feature and demonstrations on the conservation of hearing.

Provisions were made for sixty exhibits in addition to those accompanying special demonstrations. Thirty of these were new and thirty repeated from the Scientific Exhibit at previous sessions. All exhibits were selected for their interest to the physician in general practice. The different sections of the Scientific Assembly did not participate, nor were arrangements made for awards. There were a considerable number of exhibits on industrial health in connection with the Congress on Industrial Health. Exhibits on physical medicine and rehabilitation covered many phases of that subject, with demonstrations by physically disabled persons. Other groups of interest included automobile accidents and resuscitation, nutrition, child health, treatment of burns and endocrine preparations. Motion pictures were shown in an area adjoining the exhibits, fourteen films being presented once each day.

Association Exhibits

The Association Exhibits depict the work of the various Councils and Bureaus at Association headquarters. During the year ten new subjects were added to the list and some of the old exhibits brought up to date. Other exhibits were discarded as no longer serviceable. The total available for loan purposes numbered forty-six at the end of the year.

Medical Exhibits—Fifty-seven medical exhibits were shown at thirty-two meetings of state medical associations and other scientific organizations, including dental, pharmacal and similar groups. A member of the headquarters staff was present at each meeting to install and demonstrate the exhibit, the Director of the Bureau of Exhibits attending many of the meetings personally.

Health Exhibits—The Association has prepared exhibits which are available on a loan basis for the public at fairs and expositions. Requests from groups other than medical societies are referred to the local state or county medical society for approval. Responsibility for installation and demonstration is borne by the organization which borrows the material. Seventy health exhibits were sent to twenty-six fairs and other gatherings of the public, including museums, during the year. Many of these exhibits were on display for several weeks or months, reaching hundreds of thousands of persons.

Numerous requests which are received for exhibits on certain specialized subjects cannot be complied with, or are referred to other agencies. There is also an incessant call from schools, women's clubs, nurses and health departments for small exhibits that are easy to handle and require a minimum of space to install. Such requests must of necessity be referred back to the state organizations, since the Bureau of Exhibits does not have the personnel or the funds to cover the many thousands of schools and small organizations in the country.

Museums

Museums, with their readymade audiences, offer opportunities for health education which should not be overlooked.

The Museum of Science and Industry in Chicago, with an annual attendance of 1,500,000 persons, has had on display a large amount of material from the American Medical Association for several years. Much of this has become antiquated and should be replaced at an early date. The Director of the Bureau of Exhibits, with the approval of the Board of Trustees, has assumed the duty of Executive Director of Medical Exhibits at the Museum.

The Cleveland Health Museum, devoted entirely to health purposes, has used much material from the American Medical Association, some on permanent display and some temporary. The Director of the Bureau of Exhibits is on the Advisory Committee of the Museum.

The Dallas Health Museum, which was organized recently, has called on the American Medical Association for a large number of exhibits. The Toledo Museum of Science makes a special feature of its health exhibits during the summer months, at which time exhibit material is sent from Chicago.

The question and answer service has been maintained at Cleveland and Dallas with the cooperation of the Bureau of Health Education. This service was discontinued at the Chicago Museum of Science and Industry, because the large number of questions received placed too great a burden on that Bureau.

Committee on Medical Motion Pictures

The Committee on Medical Motion Pictures is a subcommittee of the Bureau of Exhibits. The Committee is in constant touch with numerous other agencies interested in motion pictures in the United States, as well as in Canada, Mexico, Brazil, Great Britain, Australia, India and China.

Film Library—The film library was increased by nine titles during the year, making a total of fifty-two titles, of which there are one hundred and ninety-one prints. New copies were purchased to replace those which were worn out. Thirteen hundred and thirty-seven films were lent to hospitals, medical schools, medical societies and physicians. Civilian hospitals were the most frequent borrowers, with the Veterans Administration, the Army and the Navy using the pictures many times. Priority is given to requests from county medical societies, and these are increasing in number. Films were sent to forty-two states, the District of Columbia, Alaska and Mexico. While it is not the policy of the Association to produce motion pictures, one picture was made for use at the Centennial Session, entitled "The Medical Motion Picture—Its Development and Present Application." It has been well received both in this country and abroad. At the request of the British Medical Association and with the approval of the Board of Trustees, a copy was donated to it.

Film Reviews—Medical motion pictures made by physicians, pharmaceutical houses and institutions are submitted to the Committee on Medical Motion Pictures for review. Fifty-two reviews have been published in THE JOURNAL. These reviews are widely read and well received and constitute the most valuable contribution which has been made to the field of motion pictures. They will be published in booklet form, with supplemental issues from time to time.

Source File—A source file of all the medical motion pictures which are available for purchase, rental or loan, is in the course of preparation. The task is a gigantic one, and its completion will require considerable time. Numerous requests are received for information about films on specified subjects, and such a source file, kept up to date, is necessary.

Motion Picture Facilities—A survey of facilities to show motion pictures in medical schools and by medical societies indicated that such equipment is inadequate. Most medical schools use films to some degree in teaching, but few of them are properly equipped with sound and silent projectors. Thirty-two state medical associations use medical motion pictures in their meetings, while ten have no access to equipment. Information was not received from the remaining state associations.

Among eight hundred and five county societies, thirty own sound projectors, three hundred and twenty-nine others have them available and one hundred and thirty-three have no access to them.

The chief sources of medical motion pictures for both medical schools and medical societies are commercial and pharmaceutical houses.

Miscellaneous Activities

Members of the Bureau staff have been engaged in numerous conferences on matters pertaining to visual education with persons from the United States and foreign countries and have addressed meetings on many occasions. Members of the staff have also served on committees with various national and international groups.

Publications sponsored by the Bureau have continued to be popular. The second edition of "Fundamentals of Anesthesia" has been entirely exhausted, and the fifth edition of the "Primer on Fractures" nearly so. Pamphlets on "Medical Exhibits" and "Health Exhibits" have had a wide distribution. Mimeographed copies of articles on various subjects pertaining to exhibits and to motion pictures have been in constant demand.

Bureau of Medical Economic Research

The Bureau of Medical Economic Research was reorganized late in 1946, so that this is the first opportunity to prepare the annual report on a calendar year basis.

Publications

There are in the Bureau's files forty-eight publications which were produced between 1931 and 1946, when this department was called the Bureau of Medical Economics. Since the reorganization, the Bureau of Medical Economic Research has published twelve articles, copies of which are available to those who wish to order them. The following paragraphs describing some of these publications will provide a picture of some of the work that is being done by the Bureau:

Dividends from the Quest for Health, a brief analysis of the monetary value of longer life, appeared in *Hygeia* in January, 1947.

Fundamental Requirements of Insurance Applied to Voluntary Prepayment Medical Care Plans tests the voluntary prepayment plans against the fundamental requirements of insurance which have evolved during several centuries of insurance experience. A given economic risk is not insurable merely because it is important. The plans generally measure up to these time tested requirements of insurance. Reprints of the article and of an editorial which accompanied its appearance in THE JOURNAL have been requested by many managers of prepayment plans.

Medical Service Areas in the United States briefly reviews prevailing methods of marking off marketing areas without regard to county or congressional district boundary lines and states the reasons why the physician-population ratio per county is insignificant. This article proposes as a substitute a physician-population ratio per medical service area; such an area would circumscribe the communities where the patients live who are served by the physicians in the principal towns and cities of that area; it would be an economic, not a political area. In this connection the Bureau is making a study of medical service areas in the United States using well established technics of marketing research. The cooperation of the secretaries and executive secretaries of the state medical associations in this study has been very heartening. At the present writing it appears that there will be about a thousand medical service areas in the United States. Every person and every square mile of the United States will be located in a medical service area. The physician-population ratio of each area will be considerably more significant, though not ideal, than the traditional physician-population ratio for each county. It is hoped that the work will be so well done that statements citing the number of counties in the United States that do not have a physician will disappear from the literature of medical economics.

Medical Groups in the United States: In this publication the number of physicians who are members of groups is expressed as a percentage of the number of physicians in active practice. The percentage of physicians engaged in group practice indicates that group practice is relatively most prominent in Minnesota, California, Montana and the West North Central, Pacific and West South Central states and the least prominent in New York, New Jersey, Pennsylvania and the New England and Middle Atlantic states.

The Trend Toward Labor Health and Welfare Programs presents a brief review of the conditions, most of which grew out of World War II controls, responsible for the demand on the part of labor unions that provision for the health of union members be made by some kind of group insurance plan. Many of these plans are provided in the union contracts negotiated with the employers.

Analysis of Questionnaire on Medical Care of Civilians During World War II. Late in 1946 the Bureau was assigned the task of assisting the then Committee on National Emergency Medical Service. About one-fifth of the time and funds of the Bureau during 1947 were devoted to an analysis of certain aspects of medical service during the war. This analysis and an editorial concerning it appeared in THE JOURNAL for March 24, 1947. Although the questionnaire was sent to less than 5 percent of the physicians who remained in civilian practice during the war, the returned questionnaires provided an excellent sample from a statistical point of view. The replies revealed that the patient load increased seventy-five percent between 1941 and 1944, that civilian physicians were rather favorably impressed with the work of the Procurement and Assignment Service, that more physicians could not have been spared from their communities for military service, especially from the smaller communities, and that an overwhelming majority favored the creation of a board to represent the medical profession with power to set policy for the utilization of all physicians in the event of another national emergency. A curious, unexpected and fortuitous result of having only 60 per cent of the physicians at home to care for the 91 per cent of the population which remained civilian was that the crude death rate of the American people in 1942 was at an all-time low. This "riddle of supply" is an effective answer to those who charge that there is an extremely grave shortage of physicians in the United States in 1948.

Analysis of Replies to Postwar Questionnaire. From the standpoint *of effort alone, this was the outstanding publication* of the Bureau during 1947. The Bureau analyzed the 26,000 replies to the postwar questionnaire, which had been sent to 50,000 discharged medical officers. The information obtained was very difficult to code but yielded extremely significant results. This study presents an insight into certain phases of the military medical history of World War II; and its *scope is so great that an adequate* summary can not be presented at this time. The continuing demand for copies of this publication has exceeded expectations.

Is Medical Care Expensive? The Bureau published this pamphlet in September. The expenditures of the American people for medical care for the period 1929 to 1945 were published by the United States Department of Commerce in July. Using this data the expenditure for medical care was compared with a number of other items of consumer expenditures. One important conclusion was that although medical care expenditures in dollars have risen rapidly in recent years, they actually constitute a decreasing percentage of the income as well as of the total consumer expenditures of the American people. In the seventeen years covered by these data medical care expenditures, expressed as percentages of these two national aggregates, reached their peaks during the depression years of 1932 and 1933. A great many leaders in medicine and hospital administration were laboring under the illusion that medical care costs had risen out of all proportion to the ability of the people to pay. The Director had the pleasing experience of destroying this illusion by helping these leaders to see the position of medical care expenditures in the general economic picture of the times. Lantern slides of the six charts in the bulletin have been furnished to more than half of the state medical association secretaries for use in their public relations programs. This bulletin also pointed out that the physician's share of the medical care dollar has declined from 32 cents in 1929 to 27 cents in 1945. The record of increasing life expectancy in the United States since 1929 indicates clearly that the people are getting more for their money now.

Four Punch Cards for Every Physician

As soon as the Bureau of Medical Economics Research began operations under the present Director, the International Business Machines at Association headquarters were put in its charge. The inventory of old punch cards was found to be defective and incomplete, and the Bureau was instructed to prepare a new and expanded set of punch cards on all living Doctors of Medicine in the United States, Canada, Alaska, Hawaii and Puerto Rico.

A unique serial number has been assigned to every living physician. Thirty blank numbers were provided between successive names to provide for new names. These serial numbers should be adequate for at least two decades. The serial numbers have been assigned in alphabetic order and permit the utilization of the maximum speed in operating the I.B.M. equipment. Forty of the eighty columns in the punch card are used to record certain factual information regarding the physician. The same information is punched into three cards. The other forty columns of the first card contain the doctor's first name, middle initial and last name with M.D. following the name. The first forty columns of the second and third cards contain his street address, if any, and town, postal zone and state. When the operation is completed, a fourth punch card will provide many important types of statistical information, will be added to the inventory and will become the basic tool of the Bureau for studying many problems of medical economics. When the inventory is completed, the American Medical Association will be able to furnish the Secretary of Defense in Washington within a matter of hours a complete list of all the living physicians in the United States together with information about each one of them which is punched into the cards. At the present writing there is some indication that the serial number used in this large operation may be utilized by other private and official agencies in close contact with the medical profession. The completion of this four punch card inventory will continue to constitute a considerable portion of the work of the Bureau through 1948 and well into 1949. The study of medical service areas cannot be completed until this punch card inventory is available.

Bureau Work for Others

Aside from the work of the Bureau for the Council on National Emergency Medical Service, the services of the Bureau have been made available to the other Bureaus, Councils and departments of the Association. During 1947 the statistical staff performed punch card and machine operations incident to the annual hospital survey for the Council on Medical Education and Hospitals, and plans are under way to perform the same operations for the Council incident to the State Board number of THE JOURNAL. Assistance has been given to surveys being made on medical motion pictures and on salaries of physicians in industrial practice. A long study has been undertaken for Associated Medical Care Plans in which the first step is to prepare a columnar analysis of the more than 1,500 different phrases or provisions in the more than fifty-eight contracts issued by member plans to their subscribers.

The Bureau has exchanged punch cards with the Surgeons General of the Army and Navy. The ease of duplicating punch cards will clearly increase the usefulness of the punch card inventory and will require a reexamination of the relationship of the Bureau with inside and outside agencies.

The Bureau's study of group practice, designed as a continuation of the two earlier periodic surveys made by Dr. R. G. Leland, former Director, has been broadened pursuant to the adoption of the resolution on group practice by the House of Delegates at the Atlantic City Session in June 1947.

The Bureau has received a duplicate set of punch cards developed by the U. S. Public Health Service for its excellent study on group practice. That study, starting in 1945 and already reported in three published articles, has made it necessary to reexamine the plans for the Bureau's study in order not to duplicate unnecessarily the scope and coverage of their study.

The practice of sending each new pamphlet as it is printed to a number of persons in the health education field, discontinued during hostilities, was resumed in February.

This year the Bureau produced the Association's annual catalog of publications for public instruction and also a supplemental catalog of available mimeographed publications, hitherto unpublicized.

Cooperative Relationships

Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association—The 1947 meeting of the Joint Committee was held, for the fourth consecutive year, at American Medical Association headquarters, May 12 to 15, 1947. Principal items dealt with by the Committee were as follows: Appointment of a subcommittee to explore possibilities for improving the work of and procuring financial support for the National Conference for Cooperation in Health Education; a report on an "Individual Height-Weight Record" and suggestions for its use by teachers and a report on a "Physical Growth Record"; a report on "A Nutritional Program for Schools"; the "Report of the Subcommittee on Standards for Determining the Health Status of School Children", and revision of the Committee's 1937 resolution on eye examinations of school children.

The term of Dr. W. W. Bauer, Director of the Bureau of Health Education, as a member of the Joint Committee expired in 1947, and the Board of Trustees of the American Medical Association appointed Dr. Dean F. Smiley, Consultant in the Bureau's Division of Health and Physical Fitness, to succeed him.

National Conference on Cooperation in Health Education—A meeting was held in Washington, D. C., April 10 to 11, 1947, at which it was reported that 42,000 copies of the report on the "Functions and Education of the School Administrator, the Physician and Nurse in the School Health Program" had been distributed. Six educational groups will be included in the initial planning for a new project of the National Conference, i.e., a statement of the "Functions and Education of the Classroom Teacher in the School Health Program." The preparation and publication of a pamphlet "The Nurse in the School" has been accepted as a project of the Conference, financing to be taken care of by the National Organization for Public Health Nursing. A minimum membership fee of $50 was decided on, and agencies who are able to make larger contributions are encouraged to do so.

American Public Health Association—Committee on Professional Education: This is one of the most important committees on which the Director of the Bureau is a member, since it is working toward objectives fully endorsed by the medical profession, namely, improvement of the public health by improving the qualifications and training of public health personnel. The committee meets about twice a year, including one meeting at the time of the annual convention of the American Public Health Association. This Committee has prepared reports on the qualifications of health officers, bureau chiefs, sanitarians and health educators and is working on other reports. It supervises the accreditation of schools of public health for giving the master's and doctor's degree in public health and directs the activities of the American Public Health Association's Merit System Unit and Placement Bureau. The Director has served two terms, the last of which will expire early in 1948. Association policy precludes reappointment after two successive terms.

Committee in Accident Prevention—This subcommittee is allocated to the Committee on Administrative Practice and has furthered accident studies and considered the publication of material in the field of accident prevention.

Committee (Illinois) for Estimate of Needed Health Educators—The Associate Director of the Bureau serves on this subcommittee of the Committee on Planning for Health Education.

American Cancer Society Educational Committee—This committee meets every month, usually in New York and usually starts its meeting at 4:30 p.m. and continues it into the evening. For this reason it becomes necessary to spend two full days in New York at times when the use of planes is impossible. The Director has therefore been unable to attend many of these meetings. This committee is concerned primarily with professional education and has shown little interest in lay health education except for money raising campaigns for the American Cancer Society.

The Director of the Bureau also serves on the following committees: Executive Committee of the National Society for Medical Research; Advisory Board on Health Services, American Red Cross; National Committee for Traffic Safety; American Medical Association Committee to Confer with National Safety Council, and The President's Highway Safety Conference, Committee on Organized Public Support. The Bureau continues to cooperate, largely by correspondence, with a large number of government agencies.

Appreciation

The Director of the Bureau of Health Education wishes to express his appreciation to the Trustees and to the Secretary and General Manager for the opportunities for increased service made possible in numerous ways during 1947

As usual, the Bureau has also enjoyed the cooperation of physicians outside Association headquarters. Special thanks are due those who cooperated in radio, television and transcription programs and who have furnished answers to questions and have helped us with advice and consultation. The Bureau appreciates the cooperation of other departments in the Association.

Bureau of Industrial and Personnel Relations

During 1947, the first year of operation of the Bureau of Industrial and Personnel Relations, study was made of the personnel administration needs of the Association. In the light of that study, of activities carried on in the past by the Association and of expanding experience, a plan of personnel administration was developed. This program obviously will be subject to future evolution and development as future appraisals and experience indicate. Appended to this report is a functional analysis of the Association's present personnel program. This program, with certain exceptions, is, or is proposed to be, under the direction of the Bureau of Industrial and Personnel Relations.

The personnel program is divided into four main divisions, with respect to both the office and the mechanical departments. These divisions are (1) employment; (2) wage and salary determination, sometimes referred to as wage and salary administration; (3) research and planning, and (4) employee relations. The first main division has, with respect to the office, five principal subdivisions, as noted in the appended analysis. The procurement of office personnel, the screening of applicants for ultimate selection by a department head and the handling of exit interviews are activities not presently being carried on by the Bureau. Employee relations, the fourth main division, has a subdivision referring to certain employee services, namely, the administration of the program of the Association for its employees with respect to life insurance annuities and hospital and medical care. The employee services just noted are administered by the Comptroller of the Association entirely independent and apart from the Bureau.

Functional Analysis of Personnel Program

Employment	Wage and Salary Determination	Research and Planning	Employee Relations
		Office	
Procurement (*a*) Advertising* (*b*) School contacts	Description of job duties Evaluation and grading of jobs	Organization analysis (*a*) Levels of authority (*b*) Work flow (*c*) Promotional opportunity	Counseling with individual employees having grievances or personal problems affecting work performance
Selection (*a*) Interviews* (*b*) Tests (*c*) Medical exams	Pricing of job grades based on wage surveys in the area	Analysis of manpower needs and utilization	Attitude or morale surveys reflecting sore spots and how they can be corrected
Placement Exit interviews*	Salary adjustments Performance rating	Ways and means of measuring the effectiveness of personnel technics with view of improving same	Supervisory training to improve the handling of personnel
Unemployment compensation claims, hearings, etc.	Writing of job specifications to be used in employment Analysis and control of overtime costs	Analysis of federal and state laws and regulations as they affect employer-employee relations	Employee services (*a*) Insurance - hospital medical care and life+ (*b*) Annuity plan +
		Mechanical Department	
Most phases of employment such as procurement, selection, placement, etc. are controlled by contractual relationships Unemployment compensation claims, hearings, etc Administration of G.I. training program	Wages established through contract negotiations Analysis and control of overtime costs Development of wage formula to expedite negotiations	Analysis of federal and state labor laws as they affect management-union relations Compilation of statistics supporting negotiations strategy Constant need for studying improved printing technics to reduce labor costs	Presenting management's position in all grievances to the union and following through the appelate procedure as established in union contracts Regular participation in industrywide bargaining with the several unions to formulate acceptable contracts Letters and other means of contacting directly individual employees to give them both sides of issue Employee services (*a*) Insurance - hospital medical care and life+ (*b*) Annuity plan+

* Mr. Bruce.
+ Mr. Hoffman.

The largest specific job carried on in 1947 by the Bureau was the determination of wage and salary policy for office personnel. As a preface to a discussion of that project, it should be stated that for the purpose of salary and wage administration there are four classes of employees at Association headquarters;

1. Employees under union contracts. The Bureau of Industrial and Personnel Relations either deals directly with the union concerned or through collaboration with the job or commercial printing industry trade association, the Franklin Association, of which the Director of the Bureau is a member of the Board of Governors; he is also a member of some negotiating committees that affect the American Medical Association.
2. Office employees receiving less than $5,000 per year compensation.
3. Administrative, executive and professional employees not of top status.
4. Top executives.

The aforementioned project relates only to class 2 as just defined.

With respect to class 1, employees under union contracts, the Bureau already has devoted time and effort, through endeavors in the plant and through industrywide cooperation, to the negotiation and settlement of wage scales. As to class 3, administrative, executive and professional employees not of top status, the Bureau will undertake future studies when adequate experience with respect to class 2 has indicated a course of intelligent, reasoned and proved conduct. The future course with regard to class 4 depends on a rational, functional survey of departmental values, which it is hoped will be conducted some time in the future.

During 1947, as already stated, the Bureau conducted a study to determine a fair distribution of the payroll to "ordinary" office personnel in accordance with performance values. It was necessary to determine the relative value of what each office employee does in the line of his or her official duties. After consultation with heads of departments and in many cases with individual employees affected, some seventy job classifications were established. These job classifications are too lengthy for inclusion in this report but are available for inspection and study. After consideration of what employees actually do on the basis of these descriptions, a job evaluation was then determined and point values established on the basis of the requirements of each job. The system utilized in the job evaluation study is too lengthy for inclusion in this report but also is available for inspection and study. The theory adopted in the job evaluation study is, it is believed, in accordance with sound personnel practice and the later developments in the field. The class of employee subject to the study is divided into so-called salary grades, according to the point values of duties involved. Each salary grade has a minimum and a maximum salary. The endeavor is to see that the average of the employees in each classification approximates the normal of his or her classification. This normal, in turn, either is the midpoint of the salary range or is the median salary paid in the area for the functions concerned. Individual employees may be above or below that normal, in accordance with their abilities, their performance and their experience. It is proposed at periodic intervals to review the performance of each employee by a system of performance rating and to recommend to the General Manager equitable salary adjustments in accordance with those studies.

Much time has been spent by the Bureau, particularly since 1947, in the negotiation of union contracts. As of the date of this writing, March 27, 1948, this effort has not been wholly successful with respect to one typographical union which, as a matter of national strategy, has adopted a policy of no contractual relations and has attempted to impose on the printing industry unilateral conditions of employment imposed solely by the union without proper negotiation with employer groups. This has resulted in a temporary cessation of activities in the Association's composing room, but the publication of THE JOURNAL has continued, its composition being effected by the use of Vari-Typer machines and an out of state print shop. The Bureau has played an active part in the establishment and operation of the Vari-Typer Department. It is hoped that normal composing room operations will have been resumed by the time this report is read.

Committee on Rural Medical Service

The committee on Rural Medical Service has been in existence three years. During this period certain things have been accomplished:

1. In each state a Committee on Rural Medical Service has been created by the state medical association so that the rural problems peculiar to each state can be studied by those familiar with local needs. These state committees are expected to contact the farm leaders whose cooperation is needed if community action is to be obtained.
2. Three annual conferences on rural health have been held in cooperation with the four largest farm organizations. The first explored the nationwide need for better medical care. The second dealt with ways and means by which better health levels could be achieved, and the third had to do with the specific problem of rural youth and the need for better health guidance for the growing farm child.
3. In 1947, to assure a more realistic program for the future, the four largest farm organizations were invited to appoint advisory members to meet with the Committee. The American Farm Bureau Federation, the Farmers Union, the National Grange and the National Cooperative Milk Producers Federation each appointed two of their members, all of whom have been most helpful.

As a result of the second annual conference, the need of trial and error experience on the community level was deemed imperative. The Committee adopted as its objective the organization of communities on the county and trade area basis for the purpose of improving health, cultural and economic conditions. These organizations were to be called Health Councils, or Community Health Improvement Associations. During 1947 such organizations were formed in a number of states, and the number is constantly growing. Health Councils should not be formed for narrow or limited objectives, since the factors that affect health are as broad as human experience.

Many groups having limited objectives are now active in the health field. In this regard may be mentioned the National Tuberculosis Association, the National Foundation for Infantile Paralysis, the American Cancer Society, the American Heart Association and a number of federal government departments. None of these alone can do a complete job; all of them combined leave too much undone.

A properly conceived health council, composed of community leaders with an adequate action and educational program under the direction of capable medical guidance, can do a complete job. This is what the Committee on Rural Medical Service has in mind. At present, we have the state medical association committees on rural health; the farm organizations have comparable committees in many states; the extension departments of the agricultural colleges are ready to cooperate along with their own health education programs; the national 4 H farm youth groups are interested in a health program and will be welcome allies; the Cooperative Health Federation of America, the medical cooperative organization, is willing to cooperate on a basis of minimum professional standards deemed necessary for the provision of good medical care.

An intelligent self interest in a fuller life, made possible through the attainment of a high level of personal well-being, will motivate lay participation in this altruistic yet practical objective.

Preliminary Report of Committee to Consider Red Cross Blood Bank Program

Pursuant to action of the House of Delegates at the Cleveland Interim Session, the Board of Trustees appointed a committee to act as a liaison between the American Medical Association and the American Red Cross Blood Bank Program. This committee has been active, and the Board has received from its chairman the following report:

The undersigned members of your Committee in liaison with the American Red Cross National Blood Program held a two day meeting, April 2 and 3, with officers of the medical department of the American National Red Cross, the Executive Committee of its Advisory Board on Health Services, and its Committee on Blood and Blood Derivatives and Subcommittee on Blood and Blood Derivatives. The numerous implications of the National Blood Program have been explored in detail, and there have been full and frank discussions in detail with the aforementioned representatives of the objections and criticism which the Committee has been able to assemble.

As a result of these deliberations the Committee believes that there have arisen some misunderstandings and apprehensions which demand immediate clarification.

Scope of Need for Blood

The need for blood procurement falls into three general categories: (1) local procurement for local continuing needs; (2) procurement for disaster relief in peacetime, and (3) procurement for single or multiple wartime disaster. The first of the mentioned needs is met in varying degrees by existing facilities in many communities. A further discussion of this need is found in an accompanying statement which the members of this Committee as individual physicians have prepared in collaboration with a number of other physicians familiar with the field. Needs in the second and third classifications require the integration of existing facilities with other facilities which must be established on a nationwide basis. Further explanation on this subject is likewise found in the accompanying statement.

To this classification of need should be added the need of facilities for obtaining and processing blood for derivatives for both research and treatment. Further must be added the present necessity for supplying blood to veterans' hospitals and the potential necessity, at any time, to supply blood and blood products to the armed forces.

Agencies for Meeting the Needs

Blood is procured at present chiefly in three ways: (1) the nonprofit voluntary blood banks; (2) the blood banks already operating in some communities by cooperation between the Red Cross, local medical societies and hospitals (the so-called "permissive" program of the Red Cross, not to be confused with the National Blood Program), and (3) the National Blood Program centers, six of which are already in operation in the following places: Rochester, N.Y.; Wichita, Kan.; Stockton, Calif.; Atlanta, Ga.; Massachusetts State Program, and Washington, D.C., Washington operating as a local program now, to be approved as part of the national program April 15. The Committee believes that all these existing facilities taken together are accomplishing only a portion of the civilian need and a very small percentage of the potential need. It is further convinced that there is a real possibility that hurried expansion may be forced on us at any time. The Committee believes that the Red Cross has no intention of attempting to activate centers for blood where existing facilities meet the general need and has positive assurance to this effect from all concerned. Furthermore, in no community will it establish a center unless the county medical society or societies concerned request Red Cross assistance and give full support to the program. The following statement by Dr. Ross T. McIntire, administrator of the program, is evidence of this:

> The program is not designed to interfere with existing blood banks already meeting community needs for blood. Rather, the program is established in specific localities only after thorough investigation indicates there is a need for blood, that facilities for supporting the program are adequate, and that the local medical society, the health department and the hospitals are in full accord. Where existing blood banks wish to be integrated with the National Blood Program every effort will be made for them to do so.

The possible urgent necessity for such a nationwide pooling of resources influenced the Committee to request the Red Cross to confer with representatives of existing blood banks regarding a basis of affiliation which would assure a general integrated program and to include in the discussion the subject of standards of procedure and technics which would make it effective.

Because of its experience in the procurement and processing of blood during World War II and its national organization and resources, the Committee is satisfied that no other organization is in as favorable a position to conduct such a program as the American National Red Cross.

Physicians should be impressed with the importance of the following two points: (1) that no local program can or will be instituted by the Red Cross without the approval of the local county medical society, and (2) that in the interest of national defense each county medical society should immediately examine the adequacy of the blood supply in its area.

A report adopted by the House of Delegates in January 1948 reads as follows:

"*Resolutions on Red Cross Blood Program.*—Your reference committee recommends to the House of Delegates continued approval of the 'approval in principle resolution' passed in June 1947 in regard to the establishment of blood banks by the American Red Cross, provided that the American Red Cross accept the following principle: To insure safety to recipients, the responsibility for technical details must rest on properly trained personnel under the control of local or state medical societies."

The Committee is convinced that the American National Red Cross agrees with this principle and will so instruct its local chapters in order that difficulties which have arisen in the past will be corrected and avoided in the future.

The Committee recognizes that the Red Cross cannot make a charge for blood and blood products supplied through its national blood centers; it believes that all physicians should likewise recognize this principle. Existing local blood programs not involved in the Red Cross National Blood Program need make no change in their existing policies; they may be affiliated in the future with the Red Cross program on a basis yet to be determined.

The Committee submits the following recommendation: (1) that the action of the House of Delegates of June 1947 and January 1948 constitutes an adequate statement of the position that the American Medical Association should maintain in regard to the Red Cross Blood Program; (2) that early publication of this report and its accompanying statement be made in THE JOURNAL, and (3) that wide distribution of the material in these documents be made to the officers of all county and state medical societies and to the editors of their journals.

The Committee will continue to work closely with the Advisory Board on Health Services of the American National Red Cross in the future development of the program and will make further reports and recommendations to the Board of Trustees as may become appropriate.

Respectfully submitted,

A. S. GIORDANO, Chairman
JOHN W. GREEN.
LEONARD W. LARSON.
HERBERT P. RAMSEY.
RALPH T. B. TODD.

Statement on the National Need for Blood Transfusion

The last ten years have seen a constantly increasing experience with blood banks in the civilian medicine of the United States. As preserved blood has become available for immediate use in a hospital, the number of blood transfusions has invariably doubled or tripled, regardless of the former provisions for obtaining fresh blood.

From the best available data in this country, it is now estimated that from 4 to 5 pints of blood are required yearly per each hospital bed. This means that a hundred bed hospital will require from 400 to 500 whole blood transfusions annually; in a two hundred bed hospital the requirement is 800 to 1,000 transfusions. There are approximately 6,000 hospitals in the United States but not over 1,200 blood banks. It is obvious from these data and from direct inquiry that a great many patients are not receiving blood because modern transfusion facilities are not available in many localities.

Most of the improvement in transfusion facilities in the past has been accomplished by the establishment of blood banks in individual hospitals or communities. In general, these not only have given excellent service but have stimulated much of the research in the field of blood transfusion.

Naturally, one method of meeting the national need for blood transfusions is the multiplication of the small unit banks along the pattern previously developed. But this ignores another possible function of blood banks, namely, the pooling of the resources of many widely separated communities in time of disaster, either from natural causes or from war. The responsible physician must visualize and prepare for the possibility that his community may be stricken suddenly with a tornado, a flood, a fire or perhaps an atomic bomb. The normal stocks of blood in the local banks will be insufficient or may be completely wiped out or rendered unfit for use from radioactivity. The blood stocks of other communities must then be called on during the emergency. Unless all these cooperating communities have an integrated organization and similar transfusion equipment, the aid will not be efficient or adequate.

Furthermore, the eventuality must be visualized when thousands of pints of blood will be required for one locality within a period of twelve to twenty-four hours. This amount would exceed the total stock kept for normal civilian needs, and therefore thousands of donors in remote communities would have to be bled for the emergency. Only with a going integrated national program can such facilities be provided. The organization for the procurement of donors must be in existence before the catastrophe. Thousands of sterile transfusion flasks, needles, and equipment for the collection and administration of blood must be stock-piled in advance for such an emergency. If the blood is transported across state boundaries, technical standards observed in collection and processing legally must be approved by the National Institute of Health.

The American National Red Cross is, in our opinion, the logical organization to develop and maintain an integrated program of blood procurement on a national scale. It had the wartime experience of obtaining and processing over thirteen million bleedings, an operation unparalleled in the history of medicine. It is incorporated by act of Congress and specifically charged with certain duties to civilians in time of disaster. Also, it has specific responsibilities toward the armed forces and the veterans. It is supported by the contributions of the American people by small individual donations and therefore is a unique agent of the people.

In June 1947 the Red Cross inaugurated a National Blood Program which proposes to fulfil the needs which have been outlined in this communication. It plans to operate only in those communities where its services are requested and has no intention of curtailing existing blood banks which are meeting community needs. It is an integrated national program based on community and regional blood banks. The program has gotten under way slowly because of insistence on the highest possible technical standards in the operation of each center serving a community. The initiative for setting up a center in a community should come jointly from the local chapter of the Red Cross and the county medical society, which is responsible for the appointment of an advisory committee to nominate the technical director of the center and to continue to advise him in its operation. Further, the program must be set up locally in collaboration with the hospital council or individual hospitals and in conformity with standards set by the health department. Mobile units to collect blood in the surrounding territory operate from each center, and blood from the center is provided to hospitals in the region served by the plan. The local chapter of the Red Cross is responsible for donor recruitment and for volunteer services at the center and with the mobile units. The National Red Cross is concerned with the raising of funds, advise on technical problems through its Advisory Board on Health Services, maintenance of high technical standards through the national organization and the integration of these community programs. In the event of a national emergency it would also be responsible for getting blood to wherever it was needed and providing an adequate supply of blood for the armed forces. Furthermore, it is important that as soon as possible representatives of the local nonprofit blood banks meet with the American National Red Cross in order to discuss means of integration in case of emergency.

As physicians who are interested in better medical care and in the welfare of the country in peace and in war, it is our considered opinion that the National Blood Program of the American National Red Cross is the best plan so far devised to integrate local facilities, including private and hospital banks, for blood transfusion, into a program of national scope which will serve the country in peace and in war. It represents a challenge to the medical profession, to public spirited citizens and to medical scientists to pool their efforts cooperatively for the welfare of the people.

Conclusion

The Board of Trustees has fulfilled in so far as has been possible during the year the directions and mandates given by the House of Delegates at the Atlantic City Annual Session and the Cleveland Interim Session. Various committees requested have been appointed and are at work; some if not all of them will have reports ready for presentation to the House at the Chicago Session. A more complete report on these matters than can be given here will be included in the Handbook of the House of Delegates.

ADDENDA TO REPORT OF BOARD OF TRUSTEES

Report of the Committee on Scientific Research for 1947

Nineteen new grants were made, amounting to $14,680. Sixteen grants were closed. Work is in progress under twenty-five grants.

The needs of support of research by small grants described in applications as well as the results of work aided by small grants indicate that for the present the work of the committee should be continued on about the same scale as in recent years. Accordingly it is suggested that for 1948 $12,550 be appropriated for grants in aid of medical research and $1,200 for the expenses of the committee.

The financial statement for 1947 is presented, also lists of grants pending and closed.

A fairly full statement about the work of the committee from its beginning is made in Dr. Fishbein's "History of the American Medical Association."

Respectfully submitted,

Committee on Scientific Research of the American Medical Association.

E. W. Goodpasture, Nashville, Tenn.
Term expires, 1952.

Ludvig Hektoen, Chicago.
Term expires, 1951.

Martin H. Fischer, Cincinnati.
Term expires, 1950.

N. W. Jones, Portland, Ore.
Term expires, 1949.

John J. Morton, Rochester, N. Y.
Term expires, 1948.

FINANCIAL STATEMENT FOR 1947

Balance, Jan. 1, 1947	$ 5,691.98	
Donation to Brant Fund	1,859.49	
Appropriation for 1947	12,550.00	
Refund, grant 616, Robert S. Dow	65.71	
Refund, grant 662, Katharine M. Howell and Elta Knoll	31.31	
Refund, grant 670, Wilbur Thomas	48.00	
Refund, grant 689, Israel S. Kleiner and Arnold Schein	267.28	
Refund, grant 701, Rollin A. Daniel Jr. and F. T. Billings	111 25	
Refund, grant 704, Archie R. Tunturi	379.15	
		$21,004 17

GRANTS PAID IN 1947

Grant 708, Otto Saphir	$ 1,103.50	
Grant 709, Roger M. Reinecke	500.00	
Grant 710, Israel Davidsohn	800 00	
Grant 711, L. R. Cerecedo	600 00	
Grant 712, James H. Leathem	500 00	
Grant 713, H. O. Burdick	200.00	
Grant 714, Ernest A. Spiegel	600 00	
Grant 715, Ben Vidgoff	500 00	
Grant 716, Ruth Silberberg	1,000.00	
Grant 717, Harold J. Harris	2,860.00	
Grant 718, Preston E. Harrison	1,191.50	
Grant 719, J. W. Stutzman	1,000.00	
Grant 720, Donald E. Olson	375.00	
Grant 721, Alfred Appelbaum	600.00	
Grant 722, Peter Gruenwald	450.00	
Grant 723, Albert Milzer	500.00	
Grant 724, Clarence Cohn	400.00	
Grant 725, Milton G. Levine and Robert E. Hoyt	500.00	
Grant 726, Ulrich Friedemann	1,000.00	
		$14,680.00
Balance, Dec. 31, 1947		$ 6,324.17

COMMITTEE EXPENSE

Appropriation for 1947	$1,200.00
Clerical expense, printing	643.93
Unexpended amount, canceled	$ 556.07

GRANTS OF COMMITTEE ON SCIENTIFIC RESEARCH

New Grants—1947

Grant 708: Otto Saphir, Michael Reese Hospital, Chicago, $1,103.50, study by serial sections of axillary lymph nodes for metastatic carcinoma.

Grant 709: Roger M. Reinecke, University of Minnesota, $500, renal gluconeogenesis in various species.

Grant 710: Israel Davidsohn, Mount Sinai Hospital, Chicago, $800, relation of Rh antibodies to fetal erythroblastosis.

Grant 711: L. R. Cerecedo, Fordham University, $600, vitamin B deficiencies in rats and mice.

Grant 712: James H. Leathem, Rutgers University, $500, antihormones.

Grant 713: H. O. Burdick, Alfred University, $200, effect of desoxycorticosterone acetate and progesterone on pregnancy.

Grant 714: Ernest A. Spiegel, Temple University, $600, effect of thalamic lesions on behavior.

Grant 715: Ben Vidgoff, University of Oregon, $500, tests for antidiuretic hormone.

Grant 716: Ruth Silberberg, Barnard Free Skin and Cancer Hospital, St. Louis, $1,000, influence of dietary factors on skeletal aging with particular reference to osteoarthritis.

Grant 717: Harold J. Harris, New York, $2,860, brucellosis.

Grant 718: Preston E. Harrison, Baylor University, $1,191.50, coproantibody in enteric infections.

Grant 719: J. W. Stutzman, Boston University, $1,000, role of visceral afferent impulses in increasing the irritability of the heart

Grant 720: Donald E. Olson, University of Oregon, $375, studies on the suppressor areas of the cerebral cortex of the dog.

Grant 721: Alfred Appelbaum, St. Francis Hospital, Lynwood, Calif., $600, ocular toxoplasmosis.

Grant 722: Peter Gruenwald, Long Island College of Medicine, $450, effect of nitrogen mustard on embryonic development of the mouse.

Grant 723: Albert Milzer, Michael Reese Hospital, Chicago, $975, fungi in acute diseases of the upper part of the respiratory tract in children.

Grant 724: Clarence Cohn, Michael Reese Hospital, Chicago, $400, intermediary nucleoprotein metabolism.

Grant 725: Milton G. Levine and Robert E. Hoyt, College of Medical Evangelists, $500, commercial Rh antiserums.

Grant 726: Ulrich Friedemann, Jewish Hospital of Brooklyn, $1,000, pathogenesis of tetanus.

STATE OF GRANT-AIDED WORK

Grants Closed During 1947

Grant 582, 1940: Charles W. Greene, Stanford University, $500, physiology of the coronary system in monkeys. Refund $160.48. Results not published.

Grant 584, 1940: Oscar V. Batson, University of Pennsylvania, $200, nystagmus. Refund $128.21. Results not published.

Grant 605, 1941: Harry G. Day, Indiana University, $400, physiologic significance of zinc. Day, H. G., and Skidmore, B. E.: Some Effects of Dietary Zinc Deficiency in the Mouse, *J. Nutrition* **33**: 27, 1947.

Grant 616, 1941: Robert S. Dow, University of Oregon Medical School, $250, effects of clotting in cerebral veins. See grant 566, 1940. Refund $65.71. Results not published.

Grant 650, 1942: Tuberculosis Committee, Minnesota State Medical Association, J. A. Myers, chairman, $1,000, tuberculosis survey of Meeker County, Minn. Danielson, K. A.: The Meeker County Tuberculosis Control Project, *Minnesota Med.* **30**: 635, 1947.

Grant 670, 1944: Wilbur Thomas, Bowman Gray School of Medicine, $300, experimental cardiac rupture. Refund $48.00. Thomas, W.: Clinicopathologic and Experimental Observations on the Pathogenesis of Rupture of the Heart Due to Myocardial Damage, *Am. J. Path.* **23**: 904, 1947.

Grant 685, 1944: Daniel J. Glomset, Des Moines, Iowa, $500, cardiac conduction. See grant 629, 1942. Glomset, Daniel J., and Birge, Richard F.: A Morphologic Study of the Cardiac Conduction System: IV. The Anatomy of the Upper Part of the Ventricular Septum in Man, *Am. Heart J.* **29**: 526, 1945. Glomset, D. J., and Birge, R. F.: A Morphologic Study of the Cardiac Conduction System: V. The Pathogenesis of Heart Block and Bundle Branch Block, *Arch. Path.*, accepted for publication.

Grant 687, 1945: Barnett Sure, Arkansas Agricultural Experiment Station, Fayetteville, $600, effect of sulfonamide drugs on thiamine and riboflavin metabolism. Sure, B.: Availability of Vitamins in Foods and Food Products: III. Riboflavin Balances with Liquid Milk, Dried Skimmed Milk and Evaporated Milk, and the Influence of Succinyl Sulfathiazole on Such Balances, *Arch. Biochem.* 12: 389, 1947.

Grant 689, 1945: Israel S. Kleiner and Arnold H. Schein, New York Medical College, $400, nutritive value of intact protein compared with the products of its enzymatic and acid hydrolysis. Refund $267.28. Results not published.

Grant 691, 1945: David J. Sandweiss, Thomas L. Patterson and Harry C. Saltzstein, $1,200, relation of the endocrine glands to gastric secretion. See grant 674, 1944. Kaulbersz, J.; Patterson, T. L.; Sandweiss, D. J., and Saltzstein, H. C.: Urine Extracts of Hypophysectomized Dogs Administered in Different Periods of a Double Histamine Experiment, *Federation Proc.* **6**: 140, 1947; Patterson, T. L.; Kaulbersz, J.; Sandweiss, D. J., and Saltzstein, H. C.: Different Periods of Administration of Enterogastrone and Urogastrone in Double Histamine Experiments, *ibid.* **6**: 177, 1947; Kaulbersz, J.; Patterson, T. L.; Sandweiss, D. J., and Saltzstein, H. C.: Urine Extracts of Thyroidectomized Dogs and Gastric Secretion, abstracted, Proceedings of the International Physiological Congress, 1947, p. 372; Patterson, T. L.; Kaulbersz, J.; Sandweiss, D. J., and Saltzstein, H. C.: Gastric Secretory Effects of Urogastrone and Enterogastrone from Hypophysectomized Dogs, *ibid.*, p. 380.

Grant 693, 1946: Catharine Macfarlane, Women's Medical College of Pennsylvania, $1,774.50, value of periodic pelvic and breast examinations for cancer. Macfarlane, C.: Cancer Prevention Clinics, *J. Am. M. Women's A.* **1**: 2, 1946.

Grant 695, 1946: Reuben Mokotoff, Montefiore Hospital, New York, $900, relation to edema of renal clearance in congestive heart failure. Mokotoff, R.: Renal Plasma Flow and Sodium Reabsorption and Excretion in Congestive Heart Failure, *J. Clin. Investigation*, accepted for publication.

Grant 696, 1946: James H. Leathem, Rutgers University, $500, antihormones. See grant 712, 1947. Leathem, J. H.: Further Studies on Antigonadotropic Formation Following Gonadotropic Hormone Administration, *Am. J. Physiol.* **148**: 700, 1947.

Grant 698, 1946: Paul F. Hahn, Vanderbilt University, $500, radioactive manganese in Hodgkin's disease, leukemia, lymphoma, etc Sheppard, C. W.; Well, E. B.; Hahn, P. F., and Goodell, J. P. B.: Studies of the Distribution of Intravenously Administered Colloidal Sols of Manganese Dioxide and Gold in Human Beings and Dogs Using Radioactive Isotopes, *J. Lab. & Clin. Med.* **32**: 274, 1947.

Grant 701, 1946: Rollin A. Daniel Jr. and F. T. Billings, Vanderbilt University, $250, quinacrine in the treatment of tuberculosis. Refund $111.25. Results not published.

Grant 708, 1947: Otto Saphir, Michael Reese Hospital, Chicago, $1,103.50, study by serial sections of axillary lymph nodes for metastatic carcinoma. Saphir, O.: Obscure Axillary Lymph Node Metastasis in Carcinoma of the Breast, *Cancer*, accepted for publication.

WORK IN PROGRESS, 1947

Grant 479, 1937: Tracy, J. Putnam, Boston City Hospital, $200, injuries to the cervical portion of the cord.

Grant 504, 1938: Wallace M. Yater, Georgetown University Medical School, $500, histopathology of bundle branch block.

Grants 518, 1938, and 559, 1939: Harold D. West, Meharry Medical College, $150, synthesis of *di*-threonine.

Grant 570, 1940: William H. Sweet, University of Chicago, $300, course of nerve fiber tracts of the temporal lobe.

Grant 607, 1941: Fritz Levy, Davis Memorial Hospital, Elkins, W. Va., $250, study of marrow cells. Levy, Fritz: Megakaryocytes and Blood Platelets, *Am. J. Clin. Path.* **15**: 154, 1945.

Grant 626, 1942: Peter P. H. de Bruyn, University of Chicago, $400, study of osteogenic substance in laying birds.

Grant 643, 1942: Milton Mendlowitz, Mount Sinai Hospital, New York, $500, digital circulation (Special Cardiac Research Fund).

Grant 647, 1942: Walter Schiller, Chicago, $250, ovarian tumors. See grant 532, 1939. Schiller, W.: Local Myelopoiesis in Myeloid Leukemia, *Am. J. Path.* **19**: 809, 1943.

Grant 656, 1943: Warren O. Nelson, Wayne University, $300, lipids in the adrenal cortex. Refund $133.08. See grant 481, 1937.

Grant 661, 1943: Roland K. Meyer, University of Wisconsin, $500, antihormones. McShan, W. H.; Wolfe, Harold R., and Meyer, Roland K.: Factors Affecting the Action of Antigonadotropic Sera in Immature Rats, *Endocrinology* **33**: 269, 1943. Wolfe, Harold R.; Meyer, Roland K., and McShan, W. H.: The Negative Phase in the Antigonadotropic and Precipitin-Productive Activities in Rabbits, *J. Immunol.* **50**: 349, 1945.

Grant 677, 1944: J. LeRoy Conel, Harvard Medical School, $500, postnatal development of the human cerebral cortex (Charles A. Brant Fund).

Grant 681, 1944: W. E. Garrey, Vanderbilt University School of Medicine, $500, innervation of the heart in vertebrates.

Grant 682, 1944: Helen Ingleby, $500, problems of cystic disease and carcinoma of the breast.

Grant 690, 1945: Leo L. Hardt, Loyola University School of Medicine, Chicago, $250, improvements of flexirigid gastroscope. See grant 673, 1944.

Grant 692, 1946: Wesley Spink, University of Minnesota, $500, brucellosis. Hall, W. H., and Spink, W. W.: In Vitro Sensitivity of Brucella to Streptomycin; Development of Resistance During Streptomycin Treatment, *Proc. Soc. Exper. Biol & Med.* **64**: 403, 1947.

Grant 694, 1946: L. R. Cerecedo, Fordham University, $600, vitamin B deficiencies in rats and mice.

Grant 699, 1946: Bernard N. E. Cohn, National Jewish Hospital, Denver, $250, experimental bone tuberculosis.

Grant 700, 1946: Harold J. Harris, New York, $2,600, diagnosis and treatment of brucellosis. See grant 717, 1947.

Grant 702, 1946: Hans Popper, Cook County Hospital, Chicago, $1,000, morphology of the liver in relation to function (Charles A. Brant Fund).

Grant 703, 1946: Frederick H. Howard, Lincoln Hospital, New York, $600, vectocardiographic research.

Grant 704, 1946: Archie R. Tunturi, University of Oregon, $600, acoustic system of the dog. Refund $379.15.

Grant 705, 1946: Hovey Jordan, University of Vermont, $450, project method in the teaching of histology.

Grant 706, 1946: Rachmiel Levine, Michael Reese Hospital, Chicago, $1,000, secretion and metabolism of progesterone in threatened abortion. See grant 684, 1944.

Grant 707, 1946: A. M. Lassek, Medical College of the State of South Carolina, $2,000, degenerative phenomena in the pyramidal tract. See grant 671, 1944. Lassek, A. M.: The Pyramidal Tract: Speed of Degeneration in Axons Following Ablation of Cells of Origin in the Monkey, *J. Comp. Neurol.* **83**: 45, 1946; Lassek, A. M.: The Human Pyramidal Tract: XV. A Study of Axons in Selected Cases with Congenital Cerebral Malformations, *ibid.* **85**: 477, 1946.

Committee on Therapeutic Research

The Committee on Therapeutic Research, a standing committee of the Council on Pharmacy and Chemistry, encourages scientific investigations in the field of therapeutics by providing funds for the prosecution of necessary research.

During the year the Committee issued eighteen grants. A detailed list of these grants, together with a list of publications during 1947 and of unexpended grants made before Jan. 1, 1947, follows.

New Grants—1947

Grant 583: Paul J. Hanzlik and R. H. Dreisbach, Stanford University School of Medicine: the intravenous use of quinine, $200.

Grant 584: Gladys R. Bucher, University of Illinois Division of Biological Sciences: uropepsin in the urine, $150.

Grant 585: Maria Wiener Kirber, Woman's Medical College of Pennsylvania, and Werner Henle, University of Pennsylvania School of Medicine, the complement fixation reaction in epidemic influenza, $350.

Grant 586: Harold D. Green, Wake Forest College, Bowman Gray School of Medicine, the role of the liver and kidneys in shock, $500.

Grant 587: Richard C. de Bodo, New York University College of Medicine, the antidiuretic action of some depressants of the central nervous system, $500.

Grant 588: Richard C. de Bodo, New York University College of Medicine: the role of gluconeogenesis and carbohydrate utilization in insulin hypersensitivity, $500.

Grant 589: Thomas G. Morrione, University of Vermont College of Medicine, cirrhosis of the liver, $500.

Grant 590: Fred D. Weidman, University of Pennsylvania School of Medicine, torulosis, $400.

Grant 591: Gregory Pincus, Worcester Foundation for Experimental Biology, the mechanism of action of gonadotropin, $2,400.

Grant 592: Sidney C. Werner and Edith Quimby, Columbia University College of Physicians and Surgeons, radioactive iodine in the diagnosis and treatment of toxic goiter, $500.

Grant 593: Robert Chambers, New York University College of Medicine, capillary fragility, $500.

Grant 594: Windsor Cutting, Stanford University School of Medicine, chemotherapy of virus infections, $500.

Grant 595: J. Murray Luck, Stanford University School of Medicine, the use of low-salt human serum albumin for the relief of hypoproteinemia and edema, $500.

Grant 596: Victor Ross, Columbia University College of Physicians and Surgeons, (1) preparation of a Schick toxin which will not require the use of a control solution; (2) preparation of protamine-diphtheria and protamine-tetanus toxoids, $350.

Grant 597: Lloyd D. Seager, Woman's Medical College of Pennsylvania, pharmacology and toxicology of the diamidines, $500.

Grant 598: Ewald E. Selkurt, Western Reserve University School of Medicine, renal physiology, $500.

Grant 599: David F. Marsh and Clark K. Sleeth, West Virginia University School of Medicine, the quantitative aspects of the well known tachyphylaxis that occurs with repeated administration of such drugs as amphetamine, ephedrine, "tuamine" and "propadrine," $400.

Grant 600: Lester M. Morrison, College of Medical Evangelists, cholesterol metabolism of patients who have survived myocardial infarction and those who have died of this disease at the Los Angeles County General Hospital, $500.

The following is a list of the investigations conducted with the assistance of grants made by the Committee on Therapeutic Research, reports of which were published during 1947:

Uropepsin: A Review of the Literature and Report of Some Experimental Findings, Gladys R. Bucher: Gastroenterology 8:627 (May) 1947.

Disappearance of Uropepsin from the Urine of Gastrectomized Cats, Gladys R. Bucher and A. C. Ivy: Am. J. Physiol. 150:415 (Sept.) 1947.

Quantitative Study of Collagen Content in Experimental Cirrhosis, Thomas G. Morrione: J. Exper. Med. 85:217 (March 1) 1947.

Influence of Body Temperature and of Temperature of Traumatized Tissues upon Local Edema and Survival of Dogs Subjected to Ischemic Compression Trauma of Their Hind Extremities, Edgar L. Lipton, Adam B. Denison and Harold D. Green: Federation Proc. (March) 1947.

Absence of Any Influence of Heparin upon Ischemic Compression Shock Studied at Various Environmental Temperatures, J. R. R. Bobb and Harold D. Green: Federation Proc. (March) 1947.

Ischemic Compression Shock; Influence of Body Temperature and of Temperature of Traumatized Tissues, Edgar L. Lipton, Adam B. Denison, and Harold D. Green: Am. J. Physiol. 150:693 (Oct.) 1947.

Effect of Ergotamine Tartrate on Potassium Changes in Histamine Shock, Caroline tum Suden: Proc. Soc. Exper. Biol. & Med. 64:464, 1947.

Effect of Adrenocortical and Sympathico-Adrenal Factors on the Cardiovascular Sensitivity to Potassium in the Rat, Caroline tum Suden: Am. J. Physiol. 149:589 (June) 1947.

On the Mode of Action of Penicillin, L.O. Krampitz and C.H. Werkman: Arch. Biochem. 12:57 (Jan.) 1947.

The Effect of Digitalis on the Fluid Distribution of the Body, Carrol A. Handley and Jane Telford: J. Pharmacol. & Exper. Therap. 89:97 (Jan.) 1947.

Relations Between Cutaneous Blood Flow and Blood Content in the Finger Pad, Forearm and Forehead, A. B. Hertzman, W. C. Randall and K. E. Jochim: Am. J. Physiol. 150:122 (July) 1947.

A Comparison of the Bronchodilator Activity of Benadryl With Some of its Derivatives and Certain Other Substances, Fred W. Ellis: J. Pharmacol. & Exper. Therap. 89:214 (March) 1947.

The Effect of Sulfonamide Administration on Cardiac Function in the Dog, Roberta Hafkesbring and Grace E. Wertenberger: Am. Heart J. 33:84 (Jan.) 1947.

Further Localization and Analysis of Adrenergic Synaptic Inhibition, Amedeo S. Marrazzi and Rose N. Marrazzi: J. Neurophysiol. 10:167 (May) 1947.

Treatment of Graves' Disease with Radio Iodine (I^{131}), Mayo H. Soley and Earl R. Miller: Chicago M. Soc. Bull. 50:290 (Oct. 18) 1947.

A New Method of Semen Analysis, Edmond J. Farris: Anat. Rec. 97:429 (March) 1947.

An Improved Method for Semen Analysis, Edmond J. Farris: J. Urol. 58:85 (July) 1947.

Studies of the Capsular Substance of Torula Histolytica and the Immunologic Properties of Torula Cells, Albert M. Kligman: J. Immunol. 57:395 (Dec.) 1947.

Comparison of the Time Concentration Curves in Arterial Blood of Diffusible and Non-Diffusible Substances When Injected at a Constant Rate and When Injected Instantaneously, W. F. Hamilton and J. W. Remington: Am. J. Physiol. 148:35 (Jan.) 1947.

Rheumatic Fever Recurrences in Children Without Sulfonamide Prophylaxis: *An Evaluation of Environmental* Factors, Robert L. Jackson, Helen G. Kelly, Cecilia Healy Rohret and Julia M. Duane: J. Pediat. 31:390 (Oct.) 1947.

Chemotherapy of Virus Infections, Windsor C. Cutting and others: J. Immunol. 57:379 (Dec.) 1947.

Penicillin Therapy in Bacterial Asthma, Frieda Baumann, Jean Crump, Ann C. Arthurs, Lloyd D. Seager and Ruth E. Miller: J. Am. M. Women's A. 2:442 (Oct.) 1947.

A Method and Observations on Capillary Fragility in Rabbits, Robert Chambers and Alfred L. Copley: Federation Proc. (March) 1947.

Retinal Sensitivity Contours in Retinitis Pigmentosa. I. Sensitivity to White Light, Charles Haig and Samuel L. Saltzman: Federation Proc. (March) 1947.

Attempted Infection of the Hen and Man with the Sporozoites of Plasmodium Cathemerium 3-H-2, Harry Beckman: Proc. Soc. Exper. Biol. & Med. 66:401, 1947.

Toxicity of "Stilbamidine", Lloyd D. Seager and Gina Castelnuovo: Arch. Path. 44:287 (Sept.) 1947.

Influence of BAL on the Acute Toxicity of Gold Salts in Mice, Rollan Swanson, Joseph Ney and Paul K. Smith: Federation Proc. (March) 1947.

The following grants were issued before Jan. 1, 1947. In some cases the grant has expired and an unexpended balance remains, or the work is not yet completed, or not yet published.

Grant 408: Ephraim Shorr, Cornell University Medical College, the effect of progesterone on the vaginal smear, $300.

Grant 443: A. B. Baker and Raymond N. Bieter, University of Minnesota Medical School, toxic effects of sulfanilamide and derivatives on nervous system and effect of vitamin B complex in prevention of such injuries, $500.

Grant 454: W. L. Mendenhall and Albert J. Plummer, Boston University School of Medicine, the quantitative determination of theophylline, $50.

Grant 455: Frederick H. Pratt and Marion A. Reid, Boston University School of Medicine, the effect of cardiac drugs on the denervated lymphatic hearts, $100.

Grant 459: Mary E. O'Sullivan, Bellevue Hospital, New York, the therapeutic effect of estradiol in muscular dystrophy, $100.

Grant 474: Arthur C. DeGraff, New York University College of Medicine, the effectiveness of sodium thiosulfate and sodium formaldehyde sulfoxalate in treatment of cardiac arrhythmias induced experimentally by mercurial diuretics, $400.

Grant 484: Alfred Goerner, Long Island College of Medicine, and M. Margaret Goerner, Brooklyn Thoracic Hospital, the toxic action of carcinogenic compounds on liver tissue, $400.

Grant 488: L. R. Kaufman, New York Medical College, circulatory competence of the intestine in cases of intestinal obstruction, $125.

Grant 489: L. R. Kaufman, New York Medical College, the use of enzyme mixture for dissolving slough, $100.

Grant 550: C.A.Handley and S.A.Peoples, Baylor University College of Medicine, water distribution of the body following the administration of digitalis, $150.

Grant 553: Adrian C. Kuyper, Wayne University College of Medicine, a procedure for the detection and determination of unidentified plasma constituents, $375.

Grant 558: Howard Glass, Marquette University School of Medicine, the comparative effect of "dermol" and morphine on the resistance of anoxia of rabbits from the onset of viability to adult life, $250.

Grant 561: G.L.Cantoni, Long Island College of Medicine, the mechanism whereby potassium exerts its effect on the intact smooth muscle, $400.

Grant 562: Grace E. Wertenberger, Woman's Medical College of Pennsylvania, cardiac physiology as revealed by the electrocardiogram during serum sickness and sulfonamide hypersensitivity reactions, $500.

Grant 563: Gregory Pincus, Worcester Foundation for Experimental Biology, standardization of chorionic gonadotropin, $1,016.

Grant 564: F.E.Kelsey, University of Chicago, the effect of drugs on phosphorus metabolism, $500.

Grant 565: Gregory Pincus, Worcester Foundation for Experimental Biology, the mechanism of action of the gonadotropic hormone, $2,100.

Grant 569: Samuel L. Saltzman and Charles Haig, New York Medical College, the therapy of retinitis pigmentosa, $500.

Grant 498: Linn J. Boyd and Kurt Lange, New York Medical College, the effect of cold in the treatment of shock, $300.

Grant 499: Joseph Litwins, New York Medical College, the chemistry and hematology of blood donors, $200.

Grant 506: Andrew F. Burton, Howard University School of Medicine, (1) the distribution of sulfanilamide in maternal and fetal tissues at various stages of pregnancy; (2) the toxic effects of quinine on the fetus in utero, $600.

Grant 514: Morton McCutcheon, University of Pennsylvania School of Medicine, the toxicity of sulfonamide drugs and penicillin and the mechanism of chemotaxis in leukocytes, $150.

Grant 516: Nellie Perry Watts, Woman's Medical College of Pennsylvania, methods to prolong the action of local anesthetic drugs, $250.

Grant 525: Herbert Silvette, University of Virginia Medical School, the effect of low barometric pressures on kidneys previously damaged, either surgically or by drugs, $250.

Grant 528: Linn J. Boyd and Kurt Lange, New York Medical College, capillary permeability of the meninges in meningitis and meningisms, $350.

Grant 529: Linn J. Boyd and Kurt Lange, New York Medical College, the effectiveness of physiotherapeutic measures in peripheral vascular diseases, $350.

Grant 531: Thomas H. McGavack, New York Medical College, the absorption of compressed pellets of the steriod hormones, $400.

Grant 532: Thomas H. McGavack, New York Medical College, inulin and "diodrast" clearances in endocrine diseases, $250.

Grant 533: Robert S. Teague, University of Alabama School of Medicine, the metabolism of diethylstilbestrol and its derivatives with emphasis on the ration of absorption, the distribution, fate and excretion of these drugs, $500.

Grant 534: Stephen P. Jewett, New York Medical College, the use of ammonium chloride in psychiatric disorders, $350.

Grant 538: Thomas H. McGavack, New York Medical College, water balance under the influence of various hormones, $200.

Grant 542: Woman's Medical College of Pennsylvania, the use of penicillin therapy in intrinsic (bacterial) allergy with chronic infection of the sinuses, $500.

Grant 543: Harold D. Green, Wake Forest College, Bowman Gray School of Medicine, the influence of environmental temperature of ischemic compression shock, $400.

Grant 547: L.M.N.Bach, Tulane University of Louisiana School of Medicine, the effect of certain hormones on the renal tubules, $150.

Grant 570: F. William Sunderman, University of Pennsylvania, Pepper Laboratory of Clinical Medicine, the use of congo red in measuring serum volume and in detecting amyloidosis, $400.

Grant 571: Edmond J. Farris, Wistar Institute of Anatomy and Biology, and Boland Hughes, University of Pennsylvania School of Medicine, the effects of endocrines and other substances on spermatogenesis in males with low sperm counts, $1,200.

Grant 572: C. H. Werkman, Iowa State College, Department of Bacteriology, the mechanism of action of penicillin and streptomycin, $1,000.

Grant 573: Joseph L. Lilienthal Jr., Johns Hopkins Hospital, relation of the enzyme system to pathophysiology of muscle and nerve function, $500.

Grant 574: E. A. Evans Jr., University of Chicago, Department of Biochemistry, biochemical study of the cellular mechanism for protein synthesis, $500.

Grant 575: Tom Addis, E. Barrett, L. J. Poo, L. Way and W. Yuen, Stanford University School of Medicine, reasons for the differences in the effects of various proteins on the rate of growth of the kidney, $1,000.

Grant 576: Harold D. Green, Wake Forest College, Bowman Gray School of Medicine, the effects of heparin on traumatic shock, $300.

Grant 578: Aaron E. *Margulis, New York Post-Graduate* Medical School and Hospital, bacteriophage phenomenon, $1,000.

Grant 579: Aaron E. Margulis, New York Post-Graduate Medical School and Hospital, experimental and clinical endocarditis, $1,000.

Grant 581: Victor Ross, Columbia University College of Physicians and Surgeons, Schick toxin and protamine-tetanus toxiod, $350.

Grant 582: Allan D. Bass, Syracuse University College *of Medicine, vascular disease and hypertension, $500.*

TREASURER'S REPORT

Report of the Treasurer of the American Medical Association for the Year Ended December 31, 1947

Investments (at cost) as at January 1, 1947..	$4,624,832.41	
Bonds purchased (at cost).................	1,036,341.63	
	$5,661,174.04	
Less:		
Bonds called, matured or sold............	1,258,340.34	
Investments as at December 31, 1947........		*$4,402,833.70*
Balance for Investment January 1, 1947....	$ 119,252.63	
Interest received on Investments in 1947....	109,845.94	
	$ 229,098.57	
Transferred to General Fund..............	$ 195,000.00	
Uninvested Funds at December 31, 1947....		$ *34,096.57*
Invested and Uninvested Funds as at December 31, 1947..		$4,436,932.27

◆

DAVIS MEMORIAL FUND

Balance in fund January 1, 1947............	$ 8,003.11	
Interest earned on bank balance in 1947.....	100.34	
Funds on deposit at December 31, 1947......		$ 8,103.45

◆

AMERICAN MEDICAL ASSOCIATION RESEARCH FUND

Investments (at cost) as at January 1, 1947..		*$1,499,512.50*	
Bonds purchased (at cost).................		350,000.00	
		$1,849,512.50	
Less:			
Bonds sold		$ 361,500.00	
Investments as at December 31, *1947*.......			*$1,488,012.50*
Uninvested funds as at January 1, *1947*......		487.50	
Add:			
Excess of proceeds over cost of bonds sold	$11,500.00		
Less:			
Loss on exchange of securities...	*2,437.50*		
		9,062.50	
Uninvested funds at December 31, 1947......			9,550.00
Invested and Uninvested funds as at December 31, 1947..			$1,497,562.50

Interest earned on investments and transferred to *General Fund* to apply on Research expenditures.	$ 34,423.96

JOSIAH J. MOORE, Treasurer.

AUDITOR'S REPORT

January 30, 1948.

To the Board of Trustees,
American Medical Association,
Chicago, Illinois.

Dear Sirs:

We have examined the balance sheet of the American Medical Association, Chicago, Illinois, as of December 31, 1947, and the statement of income for the year ended on that date, have reviewed the system of internal control and the accounting procedures of the Association and, without making a detailed audit of the transactions, have examined or tested accounting records and other supporting evidence, by methods and to the extent we deemed appropriate except as hereinafter stated regarding confirmation of receivables and observation of the inventory taking.

The cash and bank balances have been confirmed by count or by certificates from the depositaries. The United States Government and other marketable securities were confirmed by an acknowledgment from the Continental Illinois National Bank and Trust Company of Chicago where the securities are held for safekeeping.

We did not independently confirm the accounts receivable by communication with the debtors. The accounts receivable were reviewed as to age and collectibility and, in our opinion, the balances are fully realizable. We reviewed the plan and system of control adopted for inventory taking but we did not observe the taking of the inventories nor did we make tests of the physical existence of the quantities recorded.

Expenditures charged to property and equipment accounts during the year, in our opinion, were properly capitalized as representing additions or improvements. The provision for *depreciation for the year appears to be adequate.*

All ascertained liabilities have been included in the accounts. Attorneys for the Association state that no litigation was pending *against the Association as of the balance sheet date.*

In our opinion, subject to the exceptions set forth in paragraph three, the accompanying balance sheet and related statement of *income present fairly the position of the Association at December* 31, 1947, and the results of the operations for the year, in conformity with generally accepted accounting principles.

Fidelity insurance is carried on all officers and employees under a comprehensive form policy covering loss through dishonesty, forgery, etc., in amounts ranging from $2,500.00 to $50,000.00 (depending upon nature of loss) for each individual.

We have pleasure in reporting that the books are well maintained and that every facility was afforded us for proper conduct of the examination.

Yours truly,
PEAT, MARWICK, MITCHELL & Co.

INDEX TO STATEMENTS

	Exhibit
Balance Sheet as of December 31, 1947..........................	"A"
Statement of Income for the year ended December 31, 1947.....	"B"
	Schedule
Publications (Periodicals) Costs and Expenses for the year ended December 31, 1947..	"1"
Expenses of Councils, Bureaus and Committees for the year ended December 31, 1947..	"2"

Exhibit "A"

Liabilities

Accounts Payable and Accrued Expenses:		
Cooperative Medical Advertising Bureau................$		39,379.87
Miscellaneous accounts		113,101.88
Salaries and wages.....................................		18,519.53
Taxes:		
Federal withholding and social security...$	40,277.97	
Real estate and personal property........	45,900.00	86,177.97
Total Accounts Payable and Accrued Expenses.....		257,179.25

Unexpired Subscriptions to Publications			328,992.13
Deferred Credits—Directory report service and sundry other credits applicable to subsequent period			381,945.38
American Medical Association Research Fund Reserve			1,497,562.50
Net Worth:			
Association Reserve		350,000.00	
Building Reserve		450,000.00	
Retirement Reserve		675,000.00	
Equipment—Modernization Reserve		700,000.00	
Capital Account:			
Balance at December 31, 1946	$3,785,257.56		
Excess of expenses over income for year ended December 31, 1947	50,847.30	3,734,410.26	5,909,410.26
Total			$8,375,089.52

Assets

Property and Equipment—at cost:		
Land		$ 328,773.98
Buildings	$1,386,264.31	
Machinery and printing equipment	549,327.74	
Office and laboratory equipment	255,165.25	
	2,190,757.30	
Less—Reserve for depreciation	1,166,773.42	1,023,983.88
Type metal (book inventory)—at average cost		23,803.28
Total Property and Equipment		1,376,561.14
American Medical Association Research Fund:		
United States Government securities—at cost (valuation based on market quotations, $1,460,484.38)	1,488,012.50	
Cash in bank	9,550.00	1,497,562.50
Marketable Securities—at cost (valuation based on market quotations, $4,303,866.50):		
United States Government securities	2,746,551.56	
Railroad, municipal, public utility and industrial bonds	1,656,282.14	4,402,833.70
Representing investments of:		
General Fund	1,052,833.70	
Depreciation Reserve Fund	1,175,000.00	
Association Reserve Fund	350,000.00	
Building Reserve Fund	450,000.00	
Retirement Reserve Fund	675,000.00	
Equipment Modernization Reserve Fund.	700,000.00	
Cash Held by Treasurer for Investment		34,098.57
Cash in Banks and on Hand		172,689.07
Accounts Receivable:		
Advertising	237,352.02	
Reprints	4,880.86	
Directory Report Service, 18th Edition	10,933.26	
Miscellaneous accounts receivable	18,001.57	271,167.71
Interest Accrued on *Investments*		27,134.42
Inventories of Materials, Supplies, Work in Progress and Publications		174,627.74
Expenditures on Publications in Progress		373,429.12
Prepaid Expenses, Deposits and Advances:		
Insurance, etc.	16,163.64	
Deposits and advances	28,821.91	44,985.55
Total		$8,375,089.52

Exhibit "B"

STATEMENT OF INCOME

FOR THE YEAR ENDED DECEMBER 31, 1947

Income:		
Fellowship dues		$ 70,800.00
Income from investments		133,998.80
Miscellaneous receipts and other income		37,713.55
		242,512.35
Publications—Periodicals:		
Subscriptions	$1,558,483.11	
Advertising	2,342,605.39	
	3,901,088.50	
Costs and expenses—Schedule "1"	2,840,344.46	1,060,744.04
Books, pamphlets and reprints sold	89,979.40	
Less—Printing and other costs	83,874.34	6,105.06
Total Income		1,309,361.45
Expenses:		
Conducting councils, bureaus and committees —Schedule "2"	1,128,427.65	
Legal and investigating	1,000.00	
Employees' group annuities	141,159.01	
State unemployment tax	6,543.37	
Federal social security tax	21,744.22	
Miscellaneous	61,334.50	1,360,208.75
Excess of Expenses over Income		$ 50,847.30

Schedule "1"

PUBLICATIONS (PERIODICALS) COSTS AND EXPENSES

FOR THE YEAR ENDED DECEMBER 31, 1947

Wages and salaries		$1,295,221.77
Paper stock		554,972.18
Contract printing—Labor and supplies		94,792.40
Engravings and illustrations		68,554.35
Ink		26,303.30
Magazine mailing supplies		5,180.29
Factory supplies		28,695.40
Repairs and renewals		5,421.01
Express and cartage		14,331.61
Power and light		16,260.50
Building maintenance expense		79,924.52
Fuel		8,619.02
Insurance and taxes		49,565.09
Editorial news and reporting		29,507.17
Postage—First class		94,468.72
Postage—Second class		95,315.04
Subscription and advertising commissions		158,242.69
Discounts		38,728.88
Exchange		1,829.56
Subscription promotion expense		38,505.77
Office supplies		29,836.50
Telephone and telegrams		8,223.88
Office printing		33,989.82
Binding		6,226.09
Miscellaneous operating expenses		37,465.20
Employees' group hospital and life insurance		18,706.50
Increase in estimated cost to complete issues of special journal publications		1,369.46
Bad debt and tax recoveries and refunds		1,036.11
Loss on sale of equipment		2,355.38
Loss on metal dross sales		526.78
		2,844,174.99
Depreciation (based on estimated remaining life):		
Buildings	$23,479.60	
Machinery	15,289.89	
Type and factory equipment	1,837.66	
Furniture and equipment	9,824.18	50,431.33
		2,894,606.32
Deduct—Proportion of overhead expenses charged to other publications and departments		54,261.86
Total		$2,840,344.46

NOTE.—Total wages and salaries for year 1947 amounted to $2,347,671.00. Of this amount $1,295,221.77 is included above, $680,186.86 is shown in Schedule "2" (expense of Councils, Bureaus, Association and Special Committees) and the remainder, $372,262.37, was disbursed in connection with the 18th Edition of the American Medical Directory, now in preparation, and with the printing of books, reprints, pamphlets and printing in process at the close of the year.

Schedule "2"

EXPENSES OF COUNCILS, BUREAUS AND COMMITTEES

FOR THE YEAR ENDED DECEMBER 31, 1947

Salaries and wages	$ 680,186.86
Office printing and binding	34,843.72
Office supplies and repairs	19,368.27
Express, telephone and telegraph	8,788.48
Postage	16,733.93
Books and periodical subscriptions	*2,373.75*
Legislative services	5,222.85
Statistical data	21,801.00
Miscellaneous expenses	12,614.29
Educational material distributed	10,709.95
Staff travel	61,267.52
Radio broadcasting and electrical transcriptions	73,825.25
Inspection of hospitals and medical schools	9,926.53
Educational exhibits	14,408.60
Trustees' meeting expenses	17,044.53
Grants, tests and investigations	35,840.03
Section secretaries' conference and honorariums	3,589.43
State secretaries' conference	9,858.64
Council and Bureau conferences	28,485.18
Sundry committee expenses	61,538.84
Total	$1,128,427.65

NOTE.—The above expenses are spread ove [illegible] following Councils, Bureaus, and Committees as indicated: Associa [illegible] $ [illegible] of Health Education, $151,293.46; Council on [illegible] $109,421.37; Chemical Laboratory, $28,774.32; [illegible] cine, *$34,547.62*; Council on Foods and Nutrition, $24,[illegible]; [illegible] on Therapeutic Research, $13,391.66; Council on Medical Education and Hospitals, $101,987.33; Bureau of Legal Medicine and Legislation, $37,206.41; Bureau of Investigation, $8,836.51; Bureau of Medical Economic Research, $89,436.49; Council on Industrial Health, $47,055.92; Association and Bureau of Exhibits, $50,906.07; Council on Medical Service, $121,887.59; Committee on Industrial and Personnel Relations, $17,166.33.

REPORT OF THE JUDICIAL COUNCIL

To the Members of the House of Delegates of the American Medical Association:

During the past year the work of the Judicial Council has been divided between the usual matters that are presented in accordance with its duties as outlined in the By-Laws and the study of the revision of the Principles of Medical Ethics which was assigned to it at the annual session in San Francisco in 1946.

Three meetings have been held since the Atlantic City Session, two in Chicago on Nov. 12, 1947 and March 14, 1948 and one in Cleveland in January in conjunction with the Interim Session of the House of Delegates. All the routine matters usually presented to the Council were disposed of satisfactorily. These consisted of many letters asking for information concerning the application of different principles to certain acts either committed or contemplated. They were answered by some member of of the Council, giving the decision of the entire Council. The nominations and recommendations of candidates for Associate Fellowship were considered and decided. Also all candidates for Fellowship whose applications were questioned were examined and finally accepted or rejected.

There was one appeal heard in January at Cleveland. This appeal was from the decision of a component county medical society which refused membership to a group engaged in a local insurance medical service. The appeal was accepted inasmuch as several of those engaged in this service were Fellows of the American Medical Association through affiliation with another state association. They joined this insurance group with the knowledge that they would be barred from membership in the county society. Under the By-Laws of the American Medical Association, a Fellow moving to another state and failing to become a member of a component society within twelve months loses his Fellowship. However, he has the right of appeal to the Judicial Council. The Council may give an opinion but has no power whatsoever to compel a component society either to accept or to reject a candidate for membership. The interesting part of this appeal is that these members were operating an insurance medical service which was conducted without any regard for the ten principles outlined by the American Medical Association. They neither gave free choice of physicians nor permitted the participation of any hospital other than the one operated by the group. There was no criticism from either side regarding the men involved; therefore, the appellants were advised to join the state insurance group, to provide free choice of physicians and to arrange for the use of such hospitals as were approved by the local profession so that they might regain or maintain membership in organized medicine. The Council understands that conferences are now taking place to adjust this matter.

Revision of Principles of Medical Ethics

The most important work of the Judicial Council during the year was a revision of the Principles of Medical Ethics in accord with the mandate of the House of Delegates at San Francisco. The draft of the revised principles constitutes a part of this report although not included herewith. Mimeographed copies were sent to the members of the House of Delegates before the annual session in order that the delegates might have ample time for a careful study and that acceptable changes which might otherwise obstruct or delay the routine procedure of the House may be dealt with before the session and thus facilitate action. This is especially urgent since in addition to the usual business of the House, the revision of the Constitution and By-Laws will be again presented

It might not be amiss at this time to review the existing Principles of Medical Ethics with a view to their value to the medical profession, the reason for their being and the background of their development. The principles of proper behavior in practically any walk of life, and particularly in the profession of medicine, are both timeless and immutable. In reviewing the history of present ethical principles, their existence even before they were ever formulated or put into print is noted. Members of the medical profession have always adhered to certain concepts of ethics. They are formally phrased in the Constitution of the American Medical Association, which reads:

> The objects of the Association are to promote the science and art of medicine and the betterment of public health.

In the Principles of Medical Ethics of the American Medical Association they are phrased as follows:

> A profession has for its prime object the service it can render to humanity; reward or financial gain should be a subordinate consideration. The practice of medicine is a profession. In choosing this profession, an individual assumes an obligation to conduct himself in accord with its ideals.

This language did not constitute an original promulgation at the time it was first uttered as a canon of ethics. It was merely the crystallization of the characteristics of behavior of the best medical practitioners at all times and in all ages, embodied formally in the foregoing words. These considerations are presented for the purpose of making the point that it is nothing new in medical tradition for emphasis to be placed on the maintenance of standards. Medicine would not have advanced through the centuries if this had not always been the motive activating the physician.

The first printed code was published by Dr. Thomas Percival of England in 1803. He was asked to arbitrate the differences between two members of the staff of the hospital with which he was associated and after settling this dispute became exceedingly interested in the welfare of the medical profession and its future development. In 1792, at the request of a group associated with the Manchester Infirmary, he began to compose a series of ethical principles as a guide to the members of his profession. After some years, and helped by the criticism of his friends, he revised and published the manuscript. In 1823 the New York State Medical Society adopted a series of principles of ethics and in 1832 the Baltimore Medical Society did likewise. Both of these series were practically the same as Dr. Percival's original principles of ethics. Finally, at the first national medical convention, which assembled in New York in 1846, the following resolution was introduced:

> That it is expedient that the medical profession in the United States should be governed by the same code of medical ethics, and that a committee of seven be appointed to report a code for that purpose at a meeting to be held in Philadelphia on the first Wednesday of May 1847.

The resolution was adopted, and a committee was appointed with Dr. Isaac Hays as chairman. In presenting his report to the convention on June 5, 1847 Dr. Hays stated that his committee, after a careful examination of the codes then in practice in a large number of states, found them to be based almost entirely on that of Dr. Thomas Percival. He further reported that the language of this original document was preserved, in most instances, to a considerable extent, not only because of its precision and clarity but also because of its merit as recognized by the approval and adoption of the other committees. Nevertheless, the principles were modified somewhat in 1880 and rewritten in 1903. Since that time some important additions have been made. Those of considerable importance to the profession are the principles concerning advertising, solicitation of patients, contract practice and the splitting of fees. In recent years there have been several attacks on these principles as they now stand, and requests have been received that they be completely revised. The complaints in the main are that the language is not clear and that the principles are difficult to interpret. In the same measure it is well to realize that this criticism may apply to the laws enacted by the different legislatures of this nation. It is practically impossible to write a law or principle of ethics in such terms that it will be correctly interpreted by all. As a matter of fact, when a law is passed by the legislature and signed by the governor, it is not a law in many cases until a court test has been made and an official interpretation given by the judge. The function of the Judicial Council is to interpret the Principles of Medical Ethics, and the Council is willing at all times to interpret them and to express its opinion as to their application to any specific case. Many times, however, these letters by their very tone make the Council believe that the writers are trying to get an interpretation outside the meaning of the Principles for their own personal advantage. It might be well to note here that the Council has never had a case which could not be settled within the present Principles of Medical Ethics, and the Council's interpretation has never been particularly difficult or ever questioned.

The high opinion of the medical profession as held by the public is due in large measure to the whole-hearted manner in which the great mass of physicians have accepted the Principles of Medical Ethics and conducted their professional life in accordance with them. This is true also of physiians who are not even members of the Association. The Principles have always emphasized the dignity of the medical profession and have insisted that the physician give his great concern to the advancement of public health and the observance of the law. The present Principles of Medical Ethics stress first the duties of the physician to his patient. They remind him of the full responsibility that is his once he has accepted the patient. They also point out that the physiian is free to choose whom he will serve but that he should also respond to any request for assistance in times of emergency or whenever temperate public opinion expects the service. This responsibility for the patient also demands that the physician keep the public welfare in mind and that in a situation where the patient may be a menace to the public, being a possible cause of an epidemic, the public welfare must be paramount. The success of medical practice has depended on the confidential relationship between physician and patient. Every article in the Principles of Medical Ethics is predicated on and stresses that relationship. The Principles also call on the physician to protect his patient and to arrange for necessary consultations when the physician thinks they may be helpful. The Council repeats that the Principles have always insisted that the duty of the physician is first to the patient, second to the public and third to the proper relationship with his fellow members of the profession. These last instructions are well explained in the present day Principles and are especially important to the young physician as a guide to his proper conduct. Finally, these Principles of Medical Ethics distinguish the members of the medical profession from the cultists and charlatans. It might be well to quote at this time a statement issued by the Judicial Council at the San Francisco Session in 1938:

> The ethics of medicine is stated as it should be in principles of conduct instead of rules. To define and interpret these principles so as to cover every relation of the medical man would be to set up an endless system of rules, regulations and laws approaching in character a criminal code, with its invitation to violation by sophisticated reasoning or through technicality. A rule, regulation or law may be circumvented, but the principle underlying the law cannot be avoided by such means. As occasion arises, amendments will doubtless be made in the future as they have in the past, but these are strenuous times of rapid and radical change and no one can predict the immediate or remote future.

It is still the unanimous opinion of the Judicial Council that the ethics should be written as principles and not as laws, and that these principles should be as broad as possible. It is a well known fact that some of the state medical associations have their own principles of ethics and rules of conduct. These differ in many cases from the Principles of the parent organization in that they may be more specific and vary according to local custom. They must not, however, contravene the Principles of Medical Ethics of the American Medical Association. Enforcement of the ethics of medicine is a function of the component societies and constituent associations. Penalties or punishment for violation of the Principles of Medical Ethics of any state society or of the American Medical Association must be determined and applied by (the state society involved. The Judicial Council is an appeal court and of itself has no punitive power for violation of ethical principles. For many years the Principles of Medical Ethics have been the bulwark on which the great reputation of the medical profession has been established, and they should be modified only with great caution.

Resignation of Dr. Lloyd Noland.

During the past year the Judicial Council has suffered a great loss in the resignation of a long-standing member, Dr. Lloyd Noland. This action was due to a temporary illness, which unfortunately did not respond to treatment as rapidly as expected and made his attendance at meetings impossible. Dr. Noland became a member of the Council in 1935, serving a two year term through 1937. He was again appointed in 1943 and has remained a member since that date. During the years of his membership he attended all meetings but one. His experience, sound judgment and deep understanding of the principles which underlie the conduct of a professional man made him one whose opinions were always received with careful consideration. His behavior in all instances was a worthy model for the younger men of the profession. He had the happy faculty of liking people and never failed to give generous evidence of his sincere regard for them. During the years of his service, his valuable contribution to the work of the Council has made an indelible impression on its members. The Council regrets his decision to retire but hopes and believes that he will soon be returned to health and once more be found active among his friends in the profession

The President of the Association, Dr. Edward L. Bortz, has appointed Dr. Homer L. Pearson of Miami, Fla., to fill the place of Dr. Noland on the Council until the Chicago Session in June. Dr. Pearson has already attended one meeting of the Council.

Respectfully submitted,

EDWARD R. CUNNIFFE, Chairman; HOMER L. PEARSON; JOHN H. O'SHEA; LUIS A. BUIG; WALTER F. DONALDSON.

REPORT OF COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

To the Members of the House of Delegates of the American Medical Association:

The major concerns of the Council on Medical Education and Hospitals during the past year have been with the projected survey of medical education, the training of general practitioners, the extent to which the facilities for medical education in this country are meeting the nation's needs for physicians, the financial support of medical schools and the supply and distribution of interns.

Survey of Medical Education

A year ago the Board of Trustees approved the recommendation that a complete survey of the medical schools of the United States be undertaken and voted to provide the required financial support. During the course of the year the Council has enlarged its view of the scope that might reasonably be established for the survey. This broader view is reflected in the fact that the survey is now designated as a Survey of Medical Education rather than a Survey of Medical Schools.

The Council has recognized that the proper organization of this survey and a clear definition of its objectives is a heavy responsibility. In its report to the House of Delegates last year the Council discussed the great benefit that would result if the survey were conducted jointly with the Association of American Medical Colleges. The Board of Trustees has approved the recommendation of the Council that the survey be conducted by a Committee sponsored jointly by the Council on Medical Education and Hospitals and the Association of American Medical Colleges. To date this committee has been occupied with formulating the objectives of the survey, determining the general program for its conduct and selecting the full time personnel who will carry out the survey.

The future course of medical education in this country during the next fifteen to twenty years will probably be influenced to a significant degree by the results and recommendations of this survey. It is frequently stated that there has been no fundamental change in the medical curriculum in the past forty or fifty years. It is true that undergraduate medical education has been conducted within the framework of four academic years since 1893. Within that framework, however, such profound changes have occurred and are continuing to occur in the length of the academic year, in the content of the curriculum and in methods of instruction that any resemblance between the medical school course of today and that of forty or fifty years ago is limited largely to superficial characteristics.

It is generally agreed, however, that the time is appropriate to reexamine carefully both the methods and objectives of medical education so that a clear view may be obtained of the extent to which medical education has been adapted to modern needs and of the extent to which additional modifications of traditional practices are desirable.

Training of General Practitioners

The increased interest in specialization during recent years has appeared at times to have resulted in a lack of interest in the development of programs for the training of physicians who plan to enter the general practice of medicine. It is encouraging, therefore, to report that a number of medical schools are already conducting programs specifically designed to stimulate an interest in general practice among students and that many of the other schools are studying the problem with genuine interest in the expectation of fostering similar developments in the near future. Whether coincidentally or because of these efforts, reports are being received from several schools that the percentage of students expressing a desire to enter general practice is increasing.

The Council is also studying with deep interest the number of internship and residency programs that are being developed for the specific purpose of preparing physicians for general practice. The number of such opportunities that are developed will be an important factor in attracting young physicians to careers in general practice. In conducting the annual census of hospitals during the past year the Council sought information which would indicate to what extent the hospitals are organizing training programs for general physicians. When this information has been compiled, more detailed studies will be made with a view to accumulating as much information as possible concerning current trends in this field.

Because of the importance of the subject, it was arranged to have two papers presented at the Annual Congress on Medical Education and Licensure describing programs that have been established for the training of general practitioners at the undergraduate and internship levels.

It seems clear that interest in training general practitioners will continue to grow. One basic question to which an answer is needed is, "What fields of medicine will be the province of the general practitioner or family physician who ministers to the next generation?" On the answer to this question will depend to a large extent the direction in which programs for training the general practitioner will develop.

The Supply of Physicians

During the past year wide publicity has been given in the lay press to forecasts by the United States Public Health Service that a serious shortage of physicians will occur by 1960. The Council has been concerned that these forecasts would result in pressure being brought to bear on the medical schools of the country to accept more students than they can properly train, since the medical schools are already operating at maximum capacity. There is evidence that certain schools have already been subjected to such pressure. Agitation for the establishment of substandard medical schools is another consequence to be feared from such forecasts.

The Council believes that alarm over the supply of physicians is unwarranted. The current rate of production of physicians is the highest in history, and the physician population of the country is increasing at a relatively more rapid rate than the general population. Representatives of the Council have met frequently with officials of the Public Health Service in an effort to persuade them that pronouncements of physician shortages based on estimates in which hypotheses loom large will be distorted and used to support movements that will result in a lowering of the standards of medical education and ultimately of medical care. The Council is hopeful that as a result of these conferences, the Public Health Service appreciates the serious consequences that the approach they have adopted may have on the quality of medicine in the United States. The Council will continue to be interested in this problem. One of the objectives of the survey of medical education will undoubtedly be to determine how effectively present and projected facilities for medical education can meet the nation's demand for physicians.

Financial Medical Education

The maintenance of a high quality of medical education depends largely on the adequacy of the financial support provided the medical schools. The operating budgets of the medical schools are at present at an all time peak. A survey conducted by the Council revealed that the budgets of the medical schools, exclusive of the costs of patient care and special research funds from outside sources, totalled more than $43,000,000 for the current academic year. Of this amount, students' fees provide only 28 per cent or less. For the purpose of comparison it may be pointed out that this is an increase of approximately $20,000,000 over the funds available to the medical schools twelve to fourteen years ago. Although some of this increase in financial support has been neutralized by the current inflation, the additional funds that have been made available have enabled almost every school to strengthen greatly its educational program during the past decade. It seems clear that at present medical education in the United States is at the most advanced point of development that it has yet achieved. There is grave concern, however, that unless additional financial support is provided further advance will be difficult and a regression in the quality of medical education may even be observed, particularly if inflation continues. The Council shares this concern and therefore arranged to devote one session of the Annual Congress on Medical Education and Licensure to the subject of the financial support of medical education.

The speakers discussed in detail the financial needs of the medical schools and agreed that additional support is clearly required. There was general agreement that, except for the possibility of emergency grants in aid, the medical schools should not seek federal support until the possibilities of private support have been completely exhausted. President Alan Valentine of the University of Rochester presented statistics to show that "there is in private pockets more than enough (money) to finance painlessly the added costs of medical education." He appeared to express the general sentiment when he stated, "We must act with private enterprise on private enterprise. In that effort lies the free and unfettered future of medical education and medical care."

On the same subject Chancellor Harvie Branscomb of Vanderbilt University stated, "Federal funds can be just as enervating to the medical schools as they have been in some other quarters. If the schools begin to look to the federal government to pay them out of their difficulties, I am afraid of the effect on them—not only that they will be reduced to a sort of dead level of uniformity but that much of the sense of initiative and development which has characterized these schools will tend to disappear. The temptation will be to wait for federal agencies to put the funds out to start new departments and new services."

There is already evidence that certain governmental agencies are prepared to urge the federal government to provide financial assistance to the medical schools. In a speech delivered Feb. 17, 1948 Mr. Oscar Ewing, Administrator of the Federal Security Agency, stated: "I am convinced that federal aid to medical schools and to medical students is essential if we are to have the doctors necessary for the health and well-being of our people."

The Council believes that the question of the future financing of medical education presents a serious problem. It has recommended to the Board of Trustees that the American Medical Association give serious thought to initiating a sustained campaign to inform the citizens of the nation that more generous support of the medical schools from private sources is urgently needed.

Supply and Distribution of Interns

A variety of circumstances has led to a progressive increase in the number of approved internships offered by the hospitals of the country during recent years. Some of the increase has resulted from the placing of additional hospitals on the list of institutions approved for internship training. Another major influence has been the fact that many hospitals now accept more interns than they did formerly. Numerous factors have contributed to this latter development. Some hospitals require more interns because they have enlarged their facilities. Certain hospitals need more interns than formerly because they have established programs for rotating interns with other hospitals. In other instances hospitals have increased their intern staff with a view to providing a more reasonable ratio of interns to patients.

Because of the growing importance of the problem, the Council's staff has been engaged during the past year in a study of the trends in the distribution of interns. This study, which was published in the Internship and Residency Number of The Journal, revealed that as of April 1, 1948, 748 hospitals in the continental United States approved for internship training offered a total of 8,609 individual internships. The hospitals reported that 6,902 interns were actually on duty, indicating that 80 per cent of the available internships were filled.

One third of all hospitals reported no internship vacancies, and another 22 per cent reported that they had more than three fourths of their full complement of interns. Twenty per cent reported that between one half and three fourths of their internships were filled. Twenty-five per cent of the hospitals had less than half of their internships filled, including 12 per cent which reported that they had no interns. Of the 87 hospitals that constituted this latter group, 57 had one or more residents, so that only 130 of the 748 hospitals studied were without any house staff. It would thus appear that while there are considerably more internships available than there are interns, a fairly broad distribution of interns obtains.

As might be expected, the survey revealed that the larger hospitals and the teaching hospitals had the fewest vacancies. Fifty-eight per cent of the teaching hospitals had their full complement of interns, while of the nonteaching hospitals only 26 per cent reported no vacancies. Conversely, only 4 per cent of the teaching hospitals reported no interns, while 14 per cent of the nonteaching hospitals were without interns.

Of the large nonteaching hospitals of four hundred and fifty beds or more, 47 per cent had their full complement of interns and none were without interns. On the other hand, of the nonteaching hospitals of one hundred and fifty beds or less, only 23 per cent had their full quota of interns and 21 per cent had no interns.

It is of interest to compare the present situation with that obtaining in 1939. In that year 734 hospitals in the United States offered 7,707 internships and reported that 7,204 (93 per cent) of the internships were filled.

The larger number of interns available reflects the fact that more men served a second year of internship in 1939 than in 1947. The smaller number serving a second year of internship in 1947 was due at least in part to the fact that approximately 3,000 physicians who had been enrolled in the A. S. T. P. and V-12 programs in medical school entered the armed services in that year at the completion of their first year of internship. The growing trend for physicians to enter residency training after one year of internship was another factor that led to a smaller number of second year interns. With respect to this development, it should be pointed out that many first year residents actually perform the same work previously carried on by second year interns. It is thus evident that a mere comparison of the numbers of interns available in 1939 and 1948 would be misleading in comparing the amount of internship service enjoyed by hospitals in the two periods under consideration.

This study has just been completed. The Council intends to review it carefully to see if the data obtained warrant any changes in the Council's policy with respect to the approval of internships. In considering the problem of the distribution of interns, the Council believes it important that full recognition be given to the principle that the primary purpose of the internship is to provide educational experience. The service that an intern renders to a hospital, while important, must be regarded as a secondary consideration. The Council feels very strongly that it would be unwise to support any policy that might impede recent graduates from obtaining training in those hospitals that are outstanding for the quality of their educational programs to the full extent that such hospitals can satisfactorily accommodate them.

In approving hospitals for internship training, the Council has proceeded in the past on the principle that it should not attempt to limit or restrict the number of hospitals receiving its approval but should grant approval to any hospital that meets its minimum standards. In other words, the Council has encouraged a system of enterprise and free competition. While the Council believes that its standards of an approved internship have been appropriately high, it recognizes that considerable variation is to be found in the quality of the training offered by institutions on its approved list. The Council, therefore, should perhaps consider revising its standards with the intention of developing a smaller list of hospitals that offer internships that are definitely of a superior quality.

Uniform Intern Placement Plan

Three years ago the Association of American Medical Colleges formulated a plan establishing a uniform date for the appointment of interns by hospitals. This plan was endorsed by the American Hospital Association, the Protestant Hospital Association, the Catholic Hospital Association of the United States and Canada, and the Council on Medical Education and Hospitals.

The purpose of this plan was to eliminate the practice that a number of hospitals had fallen into of offering appointments to medical students early in their undergraduate course, in many cases even before they had completed the second year. It was the general belief of medical educators and hospital administrators that if this practice extended the whole situation with respect to internship appointments would become chaotic to the great disadvantage of both hospitals and prospective interns.

Adherence to the plan by hospitals has been of necessity on a voluntary basis. The only element of control is that exercised by the deans of the medical schools in not releasing students' credentials before a fixed date. In general, hospitals have abided faithfully by the provisions of the plan, although a small percentage are known to have offered appointments in advance of the specified date. While there have been criticisms of the plan, it has worked well on the whole, and no better mechanism has been suggested for accomplishing the purpose for which the plan was devised.

The following plan for appointments to internships beginning July 1, 1949 was adopted by the Association of American Medical Colleges in October 1947 and was subsequently endorsed by the Council on Medical Education and Hospitals and the other organizations referred to previously:

1. Applications and credentials to be submitted only through the dean's office to hospitals, with the date for filing applications and release of credentials by the medical schools set at Oct. 15, 1948. Credentials ordinarily will consist of an executed application blank and a letter from the dean but do not preclude such letters from members of the faculty as they may wish to write, unsolicited by the candidates.
2. Applicants may visit hospitals and be interviewed by hospital intern committees, but the hospital administration shall not commit the hospital or obligate the applicant, or potential applicants, before Nov. 15, 1948.
3. No intern appointments shall be made prior to Nov. 15, 1948 from applicants who are members of the senior class in medical school. Hospitals may decline an applicant at any time.
4. Applicants shall accept or reject hospital appointments before midnight of Nov. 18, 1948.
5. These regulations shall apply only to undergraduate medical students who have not completed the fourth year of their medical school courses.

Residency Training Program

A definite increase in the facilities for residency training is still taking place. In last year's annual report it was stated that as of April 1, 1947, 10,422 residency positions were available. By April 1, 1948 the figure had increased to 15,154. New applications for approval of residencies are still being received, so it seems likely that the maximum development of facilities for residency training has not yet been reached. There is no way to accurately determine the current demand for residency training beyond observing that few residencies are unfilled.

Because of the rapid expansion of residency training programs at the cessation of hostilities, a system of granting temporary approval to residencies was inaugurated early in February 1946 to hasten the opening up of suitable training opportunities for veteran physicians. Temporary approval is granted with the concurrence of the American Board concerned on the basis of data supplied by the hospital and other information about the hospital that is available to the Council and the Board. As soon as possible, residencies holding temporary approval are inspected by the Council; a decision is then reached as to whether to grant permanent approval or to withdraw approval. By April 1, 1948 a total of 1,136 residency programs had been granted temporary approval. A large number of these programs have already been surveyed by the Council in relation to permanent approval and the Council is making an extended effort to complete the survey of the programs still holding temporary approval at the earliest possible date. In recent months the staff of the Council, which was depleted during the war, has been augmented so that good progress should be made in this work. Even with the larger staff, however, it is unlikely that all residencies holding temporary approval can be surveyed in much less than two years.

Survey of Residencies in Orthopedic Surgery

During the course of the present year the Council collaborated with the American Orthopedic Association and the American Academy of Orthopedic Surgeons in a review of all the residencies in orthopedic surgery that had been approved on either a permanent or temporary basis by the Council with the concurrence of the American Board of Orthopedic Surgery. This study was financed by the American Medical Association as a pilot experiment designed to evaluate the system employed by the Council in appraising residencies.

This system may be summarized as follows: Hospitals seeking approval of residencies in the specialties make application to the Council on duplicate forms setting forth essential data with respect to the hospital and the particular service or services for which approval is desired. The staff of the Council then reviews the information set forth and any additional information that it possesses about the hospital and the service in question. The hospital and the service are then surveyed at an early date by a member of the Council's professional staff. A report of the survey is then prepared, together with the recommendation of the staff, and forwarded with one copy of the completed application to the American board for the specialty in question. The board, after reviewing this material, in turn submits its recommendation to the Council, which then determines whether or not approval is to be granted. When it is impossible to arrange for an early survey of a hospital requesting residency approval, one copy of the application form together with any additional information that is available is transmitted at once to the American board. When its recommendation has been returned, the Council then decides whether temporary approval should be granted until such a time as the hospital can be surveyed.

In general this plan has worked well and has appeared to be satisfactory. From time to time, however, the Council has thought that it would be of value to determine how well the evaluation of the residency programs in a given specialty made by its professional staff would compare with that made by men who have specialized in the particular field. An excellent opportunity to do this was afforded by the survey of residencies in orthopedic surgery. This survey was carried out by twenty-eight of the leading orthopedic surgeons of the country, each of whom visited and made a detailed report of the residency training programs in a group of hospitals located in an area other than his own.

The results of the survey were exceedingly gratifying to the Council, for they indicated that by using well defined objective criteria its professional staff had been able to form evaluations of residency training programs in a special branch of medicine that were substantially corroborated by experts in the field. The survey included 137 residency services that had previously been given permanent approval by the Council and the American Board of Orthopedic Surgery following an inspection by the staff of the Council. After reinspecting these hospitals, the orthopedic surgeons recommended that approval be withdrawn from only 3, or 2.2 per cent of the total. As would have been expected, it was found that a somewhat higher percentage of those hospitals which had not been previously inspected and which held only temporary approval from the Council and the Board were not judged worthy of continuing approval. Of the 101 residencies holding temporary approval, it was recommended that approval be withdrawn from 14.

The Council realizes that if similar surveys were made in other fields, such extremely close agreement might not always be found. However, this experiment would seem to indicate clearly that the present system of evaluating residencies, which in almost all specialties includes consultation and the exchange of recommendations with the American board in question, is a sound and practical one. While some slight advantage might accrue from having on the staff of the Council a specialist in each branch of medicine, such an arrangement is obviously not practical and, to judge from the results of this study, would not appear to be necessary.

Postgraduate Courses

Interest in postgraduate courses is at an all time peak and appears still to be increasing. During the year July 1, 1947 to June 30, 1948 a total of 1,679 courses are being offered. Last year the reported attendance at postgraduate courses totalled nearly 60,000. State medical socities, medical schools and hospitals are all active in providing leadership in developing this increasingly popular undertaking in medical education.

Hospital Service in the United States

During the past year the Council conducted its annual survey of hospital facilities in the United States. The report of this study reveals a substantial increase in the number of admissions and hospital births in 1947 as compared with the preceding year. The present total of 15,829,514 admissions is an increase of 676,062 in comparison with 1946 but is less than the all time high of 16,257,402 reported in 1945. The principal gain was in the nongovernmental general hospitals, whose admissions increased by 1,038,905 in 1947. The net gain by general hospitals, however, was only 613,687, inasmuch as the admissions in governmental general hospitals were reduced by 425,218. The governmental hospitals as a group showed a decrease of 393,819 admissions, whereas the nongovernmental hospitals had an increase of 1,069,881. In the general hospitals the admissions increased from 14,051,508 to 14,665,195; in the psychiatric institutions from 271,209 to 291,954, while in the tuberculosis sanatoriums there was a slight decrease from 99,741 to 99,080.

Hospital births have shown a steady increase each year with the exception of the wartime year 1944. Yet it was not until 1946, when 2,136,373 were reported, that the number of births in hospitals exceeded 2,000,000. This total is now far surpassed, however, as evidenced by the present report of 2,837,139 hospital births for 1947. Although increased numbers were reported in both the governmental and nongovernmental hospitals, the gain was more pronounced in the latter group, which has a total of 2,395,557 births as compared with 1,801,427 in 1946. Over 97 per cent of the births reported in the present survey occurred in general hospitals.

The number of beds in the hospitals registered by the American Medical Association total 1,425,222, including 1,030,205 in government hospitals and 395,017 in the nongovernmental group. The governmental hospitals, which had a reduction of 273,984 beds in 1946, showed a further decrease of 52,529 in 1947. The nongovernmental hospitals reported a net increase of 9,037. The average bed occupancy increased in all governmental and nongovernmental classifications except in the federal group, where the percentage of beds occupied decreased from 80.6 in 1946 to 78.9 in 1947. As a group the governmental hospitals showed an occupancy rate of 87.8 per cent as compared with 86.6 per cent in the previous year. The corresponding figures for the nongovernmental hospitals are 79.1 and 78.1 per cent, respectively. There was little change in the occupancy rate in the general hospitals, but increases were noted both in the psychiatric and the tuberculosis groups. During the last year the average length of stay in general hospitals was reduced from 12.9 to 11.4 days. In the governmental general hospitals the patients remain an average of 19.5 days, whereas in the nongovernmental general hospitals the average length of stay is only 8.7.

The tremendous volume of hospital service in the United States is also reflected in the average daily census of 1,217,229 reported in 1947. The general hospitals, with 93 per cent of all patients admitted last year, maintained an average daily census of 456,761. The psychiatric hospitals, however, with less than 2 per cent of the admissions, had an average census of 651,578, or 53 per cent of the daily patient load in all registered hospitals.

The total number of patient days in the 6,276 hospitals registered by the American Medical Associatoin in 1947 was 444,288,585.

Approval of American Board of Physical Medicine

During the past year the American Board of Physical Medicine completed its organization and was officially approved by the Council on Medical Education and Hospitals. This board is the sixteenth examining board in the specialties to be approved by the Council. The board has already begun to examine and certify physicians specializing in the field of physical medicine.

Annual Congress on Medical Education and Licensure

The forty-fourth Annual Congress on Medical Education and Licensure was held under the auspices of the Council on Medical Education and Hospitals and the Federation of State Medical Boards in Chicago in February 1948. Papers were presented at this congress on such timely and important topics as the financing of medical schools, the relationship of medical schools to teaching hospitals, the status of legislation for a National Science Foundation, the undergraduate and graduate training of general practitioners, the teaching of the clinical aspects of nuclear energy, the use of medical motion pictures and the teaching of physical medicine and rehabilitation.

Liaison Committee of the Council and the Advisory Board for Medical Specialties

For several years the Council has held annually a joint meeting with the Advisory Board for Medical Specialties. These meetings have been helpful in reviewing problems of mutual concern to the two organizations. During the past year both organizations expressed the belief that even more effective coordination could be achieved if a liaison committee were created that would meet frequently and thus provide a mechanism for a more continuous program of consultation and cooperation. Such a committee, composed of three members from each organization, was established and held its first meeting in February 1948. It is planned that this committee will hold at least three meetings during each year. Among other objectives this committee will attempt to define more clearly the relationship between the Council and the Advisory Board and between the two bodies and the individual American Boards. This committee should also be in a position to make constructive suggestions with respect to many of the general problems related to the specialty movement.

Liaison Committee of the Council and the Association of American Medical Colleges

In February 1942 the Board of Trustees of the American Medical Association authorized the establishment of a liaison committee of the Council on Medical Education and Hospitals and the Executive Council of the Association of American Medical Colleges. This committee, which is advisory to the two associations, has continued to meet two or three times annually to consider problems of mutual concern to the two organizations. This arrangement has been of distinct benefit to both bodies, since it has made possible joint action in important matters pertaining to medical education. Inspections of medical schools have been carried out jointly by the two organizations; joint reports of inspections are submitted to the schools, and identical action has been taken by the two groups in cases that involve the status of a medical school.

Liaison with Government Services

The growing interest of the Army, Navy, United States Public Health Service and the Veterans Administration in developing programs of graduate medical training has resulted in the Council's formation of a close and continuing liaison in an advisory capacity with these services. The relationships have been most cordial, and the Council is pleased to observe that the different services are making effective progress in establishing soundly conceived and carefully organized programs of residency training and postgraduate courses. The government services will undoubtedly find that the attraction of such opportunities for professional development will be of real benefit in recruiting the medical personnel of which they stand in need.

Collaboration with Other Agencies

The Council has continued to collaborate with numerous other agencies in the field of health, medicine and education. These conjoint activities have been varied in nature and have involved the Secretary and other members of the staff of the Council. These cooperative enterprises have included participation in conferences, meetings of advisory committees and joint sessions.

Foreign Medical Schools

Last year's report mentioned the lack of reliable information in this country concerning the present status of foreign medical schools and also mentioned that a committee of representatives from various groups with an interest in this problem had recommended that a survey be made to determine the location and certain basic factual data concerning every existing foreign medical school. During the present year this survey has been initiated. With the cooperation of the Division of International Exchange of Persons of the State Department a questionnaire has been prepared and distributed to each American diplomatic mission abroad. It is hoped that representatives of the state department will arrange to have a questionnaire filled out supplying basic information for each medical school in countries with which the United States has diplomatic relations. The completed questionnaires will be returned to the Council for study and preservation in its permanent files.

The Council has also received valuable assistance in securing information about foreign medical schools from the reports which American physicians traveling abroad have generously furnished the Council concerning medical schools that they have visited during the course of their travels.

A second meeting of the Committee on Foreign Medical Credentials consisting of representatives from the Association of American Medical Colleges, Federation of State Medical Boards, National Board of Medical Examiners, United States Office of Education, State Department and the New York State Education Department was called by the Council in February 1948, and further progress was made in arranging for the collection and exchange of information concerning foreign medical schools. While progress in this field will of necessity be slow, it would appear that in the course of time a significant body of information can be collected concerning foreign medical schools that will be of great value to the several groups in this country which must evaluate the training of students and graduates from these schools.

Medical Schools Visited

During the calendar year 1947 the following medical schools were visited for consultation, survey or other purposes:

Georgetown University School of Medicine
St. Louis University School of Medicine
Washington University School of Medicine
Baylor University College of Medicine
Southwestern Medical College
University of Texas Medical Branch
West Virginia University School of Medicine
Dalhousie University Faculty of Medicine

Inspection of Hospitals and Technical Schools

Inspection of hospitals and technical schools made by the Council during the year 1947 may be summarized as follows:

Intern Training	45
Residencies and fellowships	189
Intern training and residencies	14
Registration	16
Technical schools	6
Spas	3
Total	273
Individual residencies and fellowships investigated	625

Summary of Hospitals and Technical Schools

Figures for approved hospitals and technical schools with changes occurring during the calendar year 1947 are as follows:

Registration of Hospitals	
Hospitals registered, Jan. 1, 1947	6,280
New institutions registered during 1947	176
Closed or transferred to unclassified file	144
Hospitals registered, Dec. 31, 1947	6,312
Internship Approval	
Hospitals approved for intern training, Jan. 1, 1947	811
Approved during year	20
Removed from approved list	19
Hospitals approved for intern training, Dec. 31, 1947	812
Residency Approval	
Hospitals approved for residency training, Jan. 1, 1947	956
Approved during year	151
Removed from approved list	21
Hospitals approved for residency training, Dec. 31, 1947	1,086
Clinical Laboratory Schools	
Approved schools, Jan. 1, 1947	293
Approved during year	15
Removed from approved list	0
Approved schools, Dec. 31, 1947	308
Medical Record Librarian Schools	
Approved schools, Jan. 1, 1947	11
Approved during year	0
Removed from approved list	0
Approved schools, Dec. 31, 1947	11
Occupational Therapy Schools	
Approved schools, Jan. 1, 1947	18
Approved during year	4
Removed from approved list	0
Approved schools, Dec. 31, 1947	22
Physical Therapy Schools	
Approved schools, Jan. 1, 1947	25
Approved during year	2
Removed from approved list	1
Approved schools, Dec. 31, 1947	26
X-Ray Schools	
Approved schools, Jan. 1, 1947	161
Approved during year	22
Removed from approved list	0
Approved schools, Dec. 31, 1947	183

Council Publications

Regular publications of the Council during the year 1947 included:

Hospital Service in the United States
State Board Number of THE JOURNAL
Medical Education in the United States
Proceedings of the Annual Congress on Medical Education and Licensure
Postgraduate Courses for Veteran and Civilian Physicians
Approved Examining Boards in Medical Specialties (A Summary of the Requirements for Certification Established by the American Boards)
A History of the Council on Medical Education and Hospitals
Choice of a Medical School
Approved Colleges of Arts and Sciences
Approved Internships
Approved Residencies and Fellowships in the Specialties
Schools for Clinical Laboratory Technicians
Schools for Physical Therapy Technicians
Schools for Occupational Therapy
Schools for Medical Record Librarians
Schools for X-Ray Technicians

The Council also has reprinted for distribution a number of articles dealing with questions relating to the Council's work and responsibilities. In addition, the Council has published numerous statements in THE JOURNAL from time to time concerning current problems.

Tribute to Dr. John H. Musser

The Council suffered a very real loss in the death of Dr. John H. Musser on Sept. 5, 1947. Dr. Musser was appointed to the Council in 1934 and at the time of his death had just commenced his third term of service. Dr. Musser rarely missed a meeting of the Council. In his deliberations he was unmistakably honest and sincere. He expressed his views with conviction and firmness and, although sympathetic with medical schools and hospitals that were attempting to better their position, was intolerant of inefficiency and chicanery. The Council has faced many serious problems in the past thirteen years. Dr. Musser helped to meet them wisely and courageously. The American Medical Association and, indeed, all American Medicine, owe his memory an unforgettable debt of gratitude.

New Council Member

Dr. Virgil P. Sydenstricker of Augusta, Ga., was appointed by the Board of Trustees to fill the vacancy on the Council created by the death of Dr. Musser until the annual meeting of the House of Delegates in 1948.

Secretary of the Council

Dr. Donald G. Anderson of Boston, who was appointed by the Board of Trustees to succeed Dr. Victor Johnson as Secretary of the Council, joined the Council staff on July 1, 1947.

Professional Staff Changes

Dr. Edward K. Reid of Rome, N. Y., Dr. Edward H. Leveroos of Superior, Wis., and Dr. William W. Corbett of Baton Rouge, La., have been appointed to the professional staff. Dr. Frode Jensen resigned from the staff to become director of graduate and postgraduate medical education at the University of Colorado School of Medicine.

Appreciation

In carrying out its program the Council on Medical Education and Hospitals has enjoyed the fullest cooperation of numerous institutions and organizations, for which it wishes at this time to record its sincere appreciation. The Council is particularly grateful to the officers, trustees and members of the House of Delegates of the American Medical Association for the support and cooperation that they have given to the Council in its many activities.

Respectfully submitted,

H. G. WEISKOTTEN, Chairman.
HARVEY B. STONE.
REGINALD FITZ.
RUSSELL L. HADEN.
WILLIAM S. MIDDLETON.
VICTOR JOHNSON.
VIRGIL P. SYDENSTRICKER.
DONALD G. ANDERSON, Secretary

REPORT OF COUNCIL ON SCIENTIFIC ASSEMBLY

To the Members of the House of Delegates of the American Medical Association:

Interim Report at Cleveland Session

The Council on Scientific Assembly presented an interim report to the House of Delegates at the Cleveland Session Jan. 5, 1948 covering the activities of the Council up to that time. The report called attention to the action of the House of Delegates in June 1947 regarding the creation of a Section on Diseases of the Chest. This portion of the report was referred to the Reference Committee on Amendments to the Constitution and By-Laws, which, recognizing the possible conflict of interpretation between the Constitution and the By-Laws with respect to the creation of new Sections, referred the matter by resolution to the Committee to Study Revision of the Constitution and By-Laws. The resolution was adopted by the House on Jan. 6, 1948.

The Council on Scientific Assembly appreciates the action of the House in its attempt to make the functions of the Council more definitive and will welcome any changes in the Constitution and By-Laws that lead to this end.

Cleveland Interim Session

The Interim Session held in Cleveland January 5 to 8, 1948, presented many problems to the Council. The General Scientific Meetings, arranged with great care and addressed by eminent speakers, were in general poorly attended. The Council has some doubt regarding ability to keep up the highest standard of program planning if more physicians do not attend the lectures at future interim sessions. Even when the meetings were arranged so as not to interfere with sessions of the House of Delegates, few delegates attended. The Council noted, moreover, that the attendance at the Scientific Exhibit was not good and that the entire session, except for the meetings of the House of Delegates, was not entirely satisfactory.

The reasons were not difficult to ascertain: poor timing of the meeting; location in a city already well supplied with frequent and first class postgraduate educational programs; a growing movement to organize general practioners' societies outside of the American Medical Association; the concurrent session of the Congress on Industrial Health; the growth of state programs of a similar nature, and the partial failure to build up an attendance in advance of the meeting.

Interim Session in St. Louis

Plans to insure a successful Interim Session in St. Louis are being given consideration by the Board of Trustees and the Council. The program probably will be built on a basis of fewer formal lectures and more practical demonstrations, small conferences with limited attendance, the use of special features such as television, audience participation programs and evening programs, with motion pictures and other forms of instruction.

Chicago Annual Session

The program for the General Scientific Meetings, prepared by the Council on Scientific Assembly, is offered as part of this report.

Section on Miscellaneous Topics

In the Section on Miscellaneous Topics three sessions for the 1948 Annual Session were approved, one each on Diseases of the Chest, History of Medicine and Allergy. A chairman and secretary for each session was appointed by the Council in accordance with the By-Laws.

An additional session on Physical Medicine was approved by the Council, following sanction by the Board of Trustees, creating, for the Chicago Session, a fourth unit in the Section on Miscellaneous Topics, and a chairman and secretary were appointed for this session.

Changes in Constitution and By-laws

The Council met with the Committee to Study Revision of the Constitution and By-Laws in Cleveland Jan. 5, 1948 and made certain recommendations for revision of the Constitution and By-Laws which will clarify the duties of the Council on Scientific Assembly. The Council has been assured that its recommendations will be incorporated in the revised Constitution and By-Laws which is to be presented to the House of Delegates for action at the Chicago Session.

Section Reorganization

A suggestion was made to the Council that, instead of each section being represented by a delegate in the House of Delegates as is now the case, there be formed a Scientific Representative Assembly of section delegates, each section electing one delegate to that group to consider the problems of the scientific sections, that the Scientific Representative Assembly so formed elect five delegates to represent the scientific sections in the House of Delegates and that there be no more than five delegates from the sections no matter how many sections are established. The Scientific Representative Assembly could also act as a committee to bring up to the Council on Scientific Assembly problems affecting the sections.

The Council presents this suggestion to the House of Delegates for consideration.

Respectfully Submitted,

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REPORT OF THE COUNCIL ON MEDICAL SERVICE

To the Members of the House of Delegates of the American Medical Association:

The original objectives of the Council on Medical Service continue to guide the Council in its activities. The purpose and functions of the Council have been specifically set forth by the House of Delegates. They are briefly, to follow the trends in medical service, to interpret these trends to the members of the American Medical Association, and to make suggestions as to improvements. It has fallen to the Council to implement the functions and activities of the Association in a variety of ways. In this capacity the members of the Council have often approached tasks with the understanding that if something worth while was created or started it might well be passed on or transferred to some other department or organization. To a certain extent, then, the Council is a testing ground. After testing activities and projects it has been found that some can best be retained and carried on by the Council, some are more suitable to joint efforts with others and some are the proper functions of others.

Community Leadership

Emphasis during 1948 is being placed on community leadership in health problems by the component county medical societies and to a lesser extent by the constituent state medical associations.

County Medical Society Survey.—The first step in in community leadership in health problems is to determine the capacity of county medical societies for promoting this leadership. In order to accomplish this, a pilot questionnaire was sent to two hundred and fifty selected county societies in the forty-eight states. The results of the pilot questionnaire are interesting and show a variety of activities. Full tabulation will be completed and mimeographed when all the answers have been received.

State Medical Society Survey.—As with the county medical societies, it was necessary to know more about the constituent state medical associations. A questionnaire has been forwarded to the secretary of every state association for the purpose of learning more about activities and work of their organizations in the health care field. The information gained from both this and the county medical society questionnaire will enable the Council to act as a clearing house on medical society activities. The demand for this type of service is continually increasing. Medical societies are rapidly expanding their activities and are anxious to learn of existing experiences.

Health Councils.—Since the Council on Medical Service first reported to the House of Delegates on health councils in July 1946, the subject has become of widespread interest. This interest has been furthered through the News Letter, regional conferences, a special brochure and correspondence.

Health Councils seem to be an excellent medium through which community leadership in health problems may be attained. However, the term health council is used in a variety of ways. It means different things to different persons, and final determination of the use of the term will require further consideration of the entire program.

At present there are three types of general health councils: state health councils, metropolitan health councils and rural health councils. The primary purpose of all three types is planning and coordination. The three types are organized in a variety of ways and for a number of different purposes. Best known of the state health councils are those made up of professional groups (medical, dental and pharmaceutical); those composed of voluntary health agency representatives and those set up by official action of the state government. Examples of the first are the health councils in Illinois and California; of the second, the health councils in Virginia and Vermont; and of the third, the health council in Indiana.

The metropolitan health councils are those found in cities, usually 50,000 or more in population. These are generally composed of representatives of voluntary health agencies and of the professional societies. Many of them are sponsored and financed by the Community Chest.

The community or rural health councils are probably the latest type to develop. Here the efforts of the Council on Medical Service are being coordinated with those of the Association's Committee on Rural Medical Service.

The term health council is used, in addition, to designate more limited groups such as school health councils and even public health units or departments. The functions of such councils in any area must necessarily be integrated with those of the general health council. There is also a national organization known as the National Health Council, which has recently sponsored a conference to promote local health departments.

The Council's efforts in this field are primarily devoted to determining the facts, reporting and interpreting these facts to the members of the medical profession, and arousing an interest on the part of medical societies in taking more active part in the work of the health councils.

Regional Conferences

The Regional Conferences continue to perform a much needed function—the exchange of ideas between the constituent and component medical societies and the American Medical Association. Originally, participation in the conference was limited to the state society committees on medical service, public relations and legislation. Last year invitations were sent to other state society committees, and more recently, at the Northwest Regional Conference and the Rocky Mountain Regional Conferences, all members of the participating state societies were invited to attend and join in the discussions. Another development during 1947 was the joint sponsorship of the Regional Conferences by the Council on Medical Service, the Council on Industrial Health and the Committee on Rural Medical Service The purpose of this move is twofold: first, to provide a better picture of the work of the Association and second, to widen the scope of subjects discussed. Two regions have now organized permanent conference committees. These are the Middle Atlantic States and the Southeastern States.

News Letter

The House of Delegates at the June 1947 Annual Session recommended that the Board of Trustees investigate the possibility of extending the News Letter mailing list to include all Fellows of the American Medical Association, and if this is impossible that at least it be sent to all officers of component county societies. It has not been possible to include all Fellows of the Association. However, the county medical societies are now receiving the News Letter and several state medical associations have offered to mail copies of the News Letter to their membership, provided the Council could supply a sufficient number of copies. At present approximately 13,000 persons receive it monthly.

The News Letter continues to elicit favorable comments from all sections of the country. So many interesting activities of medical societies have warranted reporting that last fall the News Letter was increased to eight printed pages. However, recent printing difficulties have necessitated a return to mimeographing. Temporarily two mimeographed Letters are issued monthly in place of the larger printed Letter.

Special Projects

Fund-Raising Groups.—Physicians throughout the nation are feeling the pressure of the increasing demand made on them by the numerous so-called voluntary health organizations. For many years physicians have cooperated with the programs devised by the National Tuberculosis Association, the American Red Cross and the National Society for Crippled Children and Adults. Little effort was made to devise a program that would be fair to the physician as well as the public. More recently the profession has been called on by the American Cancer Society to make its cancer detection program effective. Here, however, the Board of Trustees and the Council on Medical Service entered the picture and worked for a realistic policy which included the county medical society and the physician. As a result, the American Cancer Society's program has produced many local experiments, with the full approval of the county medical societies concerned and designed to fit local opinion and needs. Presently, if the trend continues, the physician will be confronted with even greater demands. Programs are in process by the American Heart Association, the American Diabetes Association and others.

In view of this trend, the Council proposes to determine the success that country medical societies have had in serving and coordinating the various programs. Only in this manner will it be possible to set forth policies to be used as guide posts for other county medical society relations with the voluntary health organizations.

Assistance at the national level would aid materially in protecting the individual physician against undue demands on the part of the voluntary health agencies. The Board of Trustees has recognized this in several instances. However, the Council recommends to the House of Delegates that further effort be made to obtain direct representation of the Association on all national voluntary health organizations. The Council further believes it would be helpful to sponsor a coordinating committee, composed of representatives of all such national groups, for the purpose of developing policies applicable at the county medical society level.

U.M.W. Health and Hospital Fund

The Council on Medical Service and the Council on Industrial Health have reported at other sessions on the status of the United Mine Workers Health and Hospital Fund or program. The survey made by Admiral Boone gave hopes that something might be accomplished along the lines suggested by the Council in its report to the House of Delegates in June 1947. However, Mr. Lewis has confused the issue somewhat by ignoring the autonomy of this program and for all practical purposes joining it to the Welfare and Retirement Fund program. As a result, the possibility of local plans developed through joint cooperation and financed by both the miners and operators seems eliminated, and in their stead is a national program financed by a national fund derived from the 10 cent per ton impost on coal.

The Fund, however, has an able administrator in Dr. R. R. Sayers. The Council has suggested to him that trial plans be developed in several areas by competent teams composed of able men in various fields such as prepayment, preventive medicine, hospitalization, sanitation, housing and health education, the purpose being to arrive at a policy under which local needs may be determined and met without complete recourse to a national fund or plan. The needs, ability to finance and even the ability to absorb or utilize a health program differ in the various mine areas. This was the basis of the Council's original recommendations and should be the basis for further progress in any union health plan.

An important recent development in the field of labor welfare funds is the decision of the joint House-Senate Committee on Labor Management Relations to investigate the status of such funds under the Taft-Hartley Act. This law states that the detailed basis on which payments are made from such funds shall be specified in a written agreement and provides for equal employer-employee representation in the administration of labor welfare funds.

Group Practice

Interest in group practice has increased during the past two years, particularly among the returning servicemen. The Council has followed the discussion of group practice in the various medical journals.

In June 1947 the House of Delegates approved a resolution referring the study of the question of group practice to the Board of Trustees and suggesting that the Bureau of Medical Economic Research, the Judicial Council, the Council on Medical Service and the Bureau of Legal Medicine and Legislation cooperate in the project. The Board of Trustees, in turn, referred the matter to the Council on Medical Service and requested the appointment of a subcommittee on Group Practice. Following these actions the Council requested a conference of headquarters personnel representing the aforementioned Councils and Bureaus. At that time details of the study were given to the Bureau of Medical Economic Research. The Council on Medical Service selected Drs. Donald C. Balfour, Jesse D. Hamer and Edwin J. Grace to serve on this subcommittee; others may be added in the future.

It is important to note that when the Trustees referred the question of a study on group practice to the council, the proposed subcommittee and the Judicial Council were directed to draw up standards. As the problem of standards was not considered in the original resolution of the House of Delegates, the Council has discussed at length the possibility of setting standards for group practice and has requested the subcommittee to keep the problem of standards in mind during the study. Further reports on this subject will be made during or on completion of the study.

Compulsory Sickness Insurance

Public interest in compulsory sickness insurance continues unabated. Requests for information continue to pour in from physicians, students and others preparing speeches and articles or just interested in the subject. During 1947 and the first three months of 1948 over 12,000 pamphlets and reprints were mailed out in answer to such requests.

The Council wishes to call the attention of the House of Delegates to a serious situation, the complete absence in libraries—school, college and public—of reference material presenting arguments against compulsory sickness insurance. Correspondence reveals many, many persons willing to oppose government control of medical care but handicapped by lack of sources to which they may turn for arguments. The Council has approached the problem in four ways: first, by maintaining a supply of various reprints and pamphlets for distribution to students and others; second, by preparing reference material in bound volume form suitable for library use; third, by making available " loan kits" on the subject for use in cases where detailed reference data are needed and fourth, by preparing and making available a bibliography on sickness insurance publications. Literally thousands of articles, pamphlets and speeches are written annually in opposition to government medicine. Most of them are a repetition of nebulous arguments, many of which are thoroughly sound and extremely important but no longer sufficient to satisfy students, speakers or writers. Basic facts, figures and specific informa- are too often missing. In an effort to remedy this the Council staff is reviewing all literature on the subject with the view to preparing a question and answer booklet suitable to all but the research student. This should be placed in every college, medical school and hospital library. Supplying public and high school libraries is too expensive a job for the present.

Cash Sickness Benefits

The House of Delegates approved the principle of cash sickness benefits in 1938. Since that time interest in the subject, particularly on the part of state legislatures, has developed rapidly. Fifty proposals for cash sickness and related benefits were introduced in state legislatures in 1947. Of this number, twenty-five provided for specific cash sickness benefits to be paid out of a monopolistic state fund, with affiliation compulsory. The implications of this type of program warrant serious consideration. The House of Delegates recognized this when it approved a resolution requesting " a complete study of the existing and proposed compulsory temporary disability compensation programs." The resolution was referred to the Council on Medical Service, and since then the staff has followed closely the developments in various states. These developments were reported to the House in June 1947 and in January 1948.

The Council has postponed a detailed study until experience from more than one type of program can be obtained and compared. The Rhode Island (monopolistic) plan has been in operation over five years, the California (optional) plan over one year and the Railroad Retirement Board (national) plan almost a year. Studies of these three, together with a number of the proposed plans, should provide a reasonable appraisal of the subject. A study of the Rhode Island plan has recently been completed by Miss Elizabeth Wilson and arrangements have been made to have access to the results of the study. Studies of the two other plans will be undertaken in cooperation with the Bureau of Medical Economic Research, unless the Council discovers existing studies comparable to that of Miss Wilson.

The Council is primarily interested in the medical aspects of cash sickness benefit programs and will make every effort to arrive at definite recommendations.

Prepayment Development of 1947

Topping the early predictions of the Council, enrolment figures for the medical society and Blue Cross-sponsored medical care plans give evidence of totaling 7,500,000 as of Dec. 31, 1947. Enrolment as of Dec. 31, 1946 totaled 5,000,000 and on Dec. 31, 1945 it was 2,840,000. The picture today shows more than 7,500,000 persons covered, over 50 per cent enrolment growth in 1947, over 95 voluntary plans in operation in forty-two states and the remaining six states and the District of Columbia in the organization stage. Another and even better picture is presented by over-all voluntary health insurance developments. A recent survey reveals the extent to which the American public is at present insured against hazards such as loss of income due to disability and enjoys the benefits of hospitalization, and surgical and medical care insurance. The following summary shows the number of insurance agreements in effect for the various types of benefits: approximately 30,000,000 persons (one half of the working population)—loss of income due to disability; over 40,000,000 —hospitalization; approximately 17,000,000—surgical benefits, and over 6,000,000—medical benefits.

Plan Descriptions and Statistics.—The individual prepayment plans are making constant changes in benefits, costs and so forth. Changes are necessary in order to meet changing needs.

The Council staff is in the process of compiling all the latest changes as well as preparing descriptions of the new plans developed since the 1947 revision of the " Voluntary Prepayment Medical Care Plans" brochure. In addition, the Council is revising the statistical charts and graphs which were used as a supplement to the prepayment brochure. These revised charts and graphs will make the Council's prepayment exhibit more current.

Cooperation with Other Agencies.—In an effort to avoid unnecessary duplication of work, the Council staff makes every effort to cooperate with other agencies. The data assembled by Associated Medical Care Plans and the Blue Cross Commission are limited to that of plans claiming nonprofit status. As the American Medical Association recognizes all voluntary programs, certain basic research is necessary in addition to cooperation with other groups.

Seal of Acceptance.—The Seal of Acceptance of the Council on Medical Service has been granted to sixty of the ninety-nine plans now in operation. These plans represent a wide variety of types, sizes and experiments in the voluntary field of prepayment medical care. The Standards of Acceptance developed by the Council on Medical Service to be used as a guide in evaluating prepayment medical care plans were designated as preliminary standards. Insurance company representatives, through the Health Insurance Council, have suggested certain amendments to the preliminary standards. These proposed changes are being considered by the Council.

Free Choice of Physician.—The Report of the Judicial Council at the Annual Session of the House of Delegates in 1947 included pertinent remarks in regard to the free choice of physician. While the remarks referred to medical care in general, they were particularly applicable to prepayment plans. The Council on Medical Service studied the Judicial Council's statement and prepared a written discussion of the remarks. The entire application of the principle of free choice of physician and hospital as it applies to prepayment plans is not yet entirely clear to the Council. The extent to which "free choice of physician" may possibly be limited in the various plans has been reviewed and will be discussed further with the Judicial Council.

Another matter submitted to the Judicial Council for consideration was the approval of plans by medical societies. The Standards of Acceptance provide for approval by either a state medical association or county medical society. In considering several local plans, the question arose as to whether they must have state as well as county society approval. It was the Judicial Council's opinion that wherever local prepayment plans operate within a state, these local plans may be accepted by the Council on Medical Service provided they have the approval of the county medical society or societies in whose area they operate and provided they are not disapproved by the state medical society. In other words, these local plans need not necessarily have the approval of the state society, but they must not be disapproved. The Standards will be amended to clarify this matter.

Health Insurance Council.—The insurance organizations which originally participated in the Joint Conference Committee on Health Insurance have renamed the group the "Health Insurance Council." At the outset, the insurance groups were to meet with representatives of the American Medical Association to discuss the application of insurance principles to the economics of medical care. In addition it was desired to bring together all voluntary agencies interested in the extension of prepayment insurance to a greater portion of the American people. The opening sentence of the purposes of the Health Insurance Council states: "The programs providing health insurance coverages, including medical, hospital and surgical expense benefits, are recognized as being in the public interest."

The Council's purposes provide further:

> To the end that such voluntary coverages may better serve the needs of the insuring public, the Health Insurance Council is available to such groups:
>
> 1. For conference regarding their sponsorship or endorsement of voluntary plans for insuring medical, hospital or surgical expenses to be underwritten by private insurers.
>
> 2. For the consideration of means for improvement in the effectiveness of such voluntary plans.
>
> 3. As a source of factual information concerning the extent and nature of health insurance coverages.

On Feb. 10, 1948 representatives of the Health Insurance Council met with a committee of the Council on Medical Service in furtherance of its aims.

Insurance Claim Blanks Simplified.—Since the Council approved two simplified insurance claim forms, three other simplified forms have been prepared as the result of combined efforts of insurance representatives and physicians. While no specific approval has been requested for the newer forms, this shows that both groups are active in eliminating nonessential questions when requesting medical information to be used in appraising insurance claims.

Medical Cooperatives.—The Council's study of consumer-managed voluntary health service plans is nearing completion. To date one hundred and sixty-nine such plans have been found in forty-two states and the District of Columbia. All these plans are not cooperatives, but they are all consumer managed. Sixty-two of the one hundred and sixty-nine plans have reported a total enrolment of 1,028,853 persons.

Special Prepayment Exhibit.—The success of the prepayment part of the Council's exhibit at the Annual Session in Atlantic City, N.J., prompted the preparation of a portable display for use during meetings of state medical associations. The exhibit consists of a large map showing the spread of prepayment plans and six charts and graphs picturing plan growth, enrolment, claim experience and administrative costs.

The Washington Office

It is gratifying to report that none of the health legislation introduced into the Eightieth Congress which in the opinion of the American Medical Association challenged the best interests of the people was enacted.

Every opportunity afforded the Association by Committees and Committee members to testify at public hearings, sit in conferences and discuss individual merits of legislation to propose additions or modifications of the public health laws was accepted. The cordiality with which the contributions of representatives of the Association were received was most gratifying. Although Congress will not adjourn for another couple of months it is not likely that either of the two national health bills will be passed. The Senate Committee is still taking testimony from witnesses, and the reference committee in the House of Representatives has not started its hearings.

S. 140 (Taft), which proposes to create a Department of Health, Education and Security with cabinet rank, was reported out by the Senate Committee on Labor and Public Welfare, but repeated attempts to have it advanced to the floor have failed through objections offered by senators. The present draft of the bill provides that it shall be administered by a Secretary of Health, Education and Security, appointed by the President, who shall have three undersecretaries, each appointed by the President--one for health, one for education and one for security. Nothing in the bill requires that the Undersecretary of Health shall be a doctor of medicine. Provision is made for a Bureau of Health which shall be administered by the Undersecretary of Health who shall have charge of the health functions and activities of the department. The Secretary is authorized to appoint advisory committees, whose members shall be qualified persons not otherwise employed by the federal government. To the Bureau of Health shall be transferred the U. S. Public Health Service, the Food and Drug Administration, Freedmen's Hospital and Saint Elizabeths Hospital.

S. 1290 (Saltonstall) and H. R. 1980 (Howell) in their original form were alike in providing for assisting the states both with subsidy and personnel for the medical examination of school children. At the hearing on the Senate bill, an elaborate amendment was offered which would extend the service to all children and youth of school age. Provision was also made for instruction in physical education. The Association's witness took exception to the provision that treatment should be made available without regard to the ability of parents to provide it. Objection was also raised to the fact that no provision is made for consultation between the school physician and the family and the family physician. The witness for the Association recommended that the states be encouraged to carry on the work without federal interference and that opportunity be provided for appeal to the courts when differences arise between the state administrative body and the Federal Security Administrator.

S. 1679 (Murray) and H. R. 4303 (Dingell) provide for a national program of retirement, survivors and extended disability insurance similar to sections of S. 1050 (Seventy-Ninth Congress).

S. 2189 (Saltonstall) and H. R. 5644 (Dolliver) and H. R. 5678 (Priest)-the local Public Health Services Act of 1948-provide for grants-in-aid to assist the states in the development and maintenance of local public health units. The aid is to be administered through the Surgeon General acting with the approval of the Administrator of the Federal Security Agency. The states are to submit their plans, and in order to receive the Surgeon General's approval the plans must (1) cover all areas of the state; (2) guarantee adequate authority to the state and public health officials; (3) guarantee continued financial support and employment of full time personnel; (4) guarantee adequate distribution and effective use in the extension and expansion of basic public health services; (5) establish and maintain personnel standards on a merit basis, and (6) make such reports as the Surgeon General may require. In general, the federal government will contribute one third of the appropriation required. The Surgeon General, after reasonable notice and opportunity for hearing, may refuse to make further appropriations if he finds that the state fails to comply substantially with any of the provisions already stated. No provision is made for the state to appeal to the courts in defense of its plan, as is provided in the Hospital Construction Act.

S. 2215 (Bridges) provides for research and control relating to diseases of the heart and circulation by aiding in the conduct of researches, investigations, experiments and demonstrations relating to the cause, prevention and methods of diagnosis and treatment of diseases of the heart and circulation. It would establish in the Public Health Service a National Heart Institute, to be administered by the Surgeon General. It would make grants-in-aid to universities, hospitals, laboratories and other public or private agencies, as well as to individuals. It would establish an information center on research. Volunteer patients with heart disease would be admitted to the institute for study and treatment. It provides for the creation of a National Heart Council to consist of the Surgeon General of the Public Health Service, the Chief Medical Officer of the Veterans Administration, the Surgeons General of the Army and Navy and twelve members who shall be leaders in the fields of fundamental sciences, medical sciences, education or public affairs.

Two somewhat similar bills, H. R. 5087 (Keefe) and H. R. 5159 (Smathers), are in the House of Representatives.

Appropriations.—The House of Representatives on March 8 passed an overall total of $173,230,500 appropriation for Public Health Service programs and activities for the fiscal year 1949, which represents $43,673,575 more than corresponding appropriations for 1948.

1. Venereal Disease gets $17,230,000. Most of this money will be distributed among the states through grants-in-aid on a fifty-fifty basis. The amount is slightly less than that allowed for 1948

2. Tuberculosis has been allowed $9,291,000, which represents an increase of $945,348 over 1948. The increase is allowed for the equipment and operation of eighteen new mass x-ray units for case finding and the conduct of large scale pilot studies of BCG vaccine.

3. Assistance to States, general, totals $13,865,000, which represents an increase of $378,000 over 1948 for comparable activities. Two activities included in the budget estimate were excluded for the time, namely, $4,000,000 for mental hygiene and $1,500,000 to conduct demonstrations in schools on the application of sodium fluoride to the teeth of school children.

4. Communicable Diseases was allowed $7,490,000, which is $429,176 less than the comparable 1948 appropriation. The decrease is accounted for by the assumption on the part of the states of a larger proportion of the cost of malaria and typhus control operations.

5. Hospital Construction had $60,000,000 appropriated for expenditures during the year, and $75,000,000 is allowed for contract authorization. In the deficiency appropriation bill which was passed earlier in the year, an item of $15,000,000 was carried to meet cash requirements for actual construction estimated to be completed by the end of the year. Thus, of the $375,000,000 authorized by the Hospital Construction Act, $150,000,000 will be spent or available for 1949. The government appropriates one third of the actual cost of construction.

6. Administration Expenses and Hospital Construction were allocated $1,352,000, an increase of $424,015 over the corresponding 1948 appropriation for administrative and technical personnel. Forty-six additional positions, largely in the technical categories of architectural engineering and hospital administration, are to be added.

7. Hospitals and Medical Care had $21,443,000 appropriated, a net increase of $71,891 over 1948. The beneficiaries are twenty-one general marine hospitals, two tuberculosis marine hospitals, one leprosarium, seventeen full time outpatient clinics, ninety-eight part time outpatient offices and in addition medical, dental and nursing personnel for coast guard installations and cutters. For foreign quarantine service $3,000,000 is appropriated, representing an increase of $298,141 above the comparable 1948 appropriation.

Employee Health Services Programs received an appropriation of $392,500, which funds are to enable the public health service to supervise the emergency treatment and preventive health programs operated for government employees by the various agencies of the government.

The National Health Institute is allowed $13,570,000, which represents an increase of $2,567,125 over 1948. Of the total budget increase, $1,382,500 is for additional research in diseases of the heart and circulatory system; $7,682,000 is allowed for grants in aid of research, and $400,000 is earmarked for research fellowship grants. A separate item of $100,000 is appropriated for research on peptic ulcer.

The National Cancer Institute is allowed $14,000,000, which is the identical amount available for the current fiscal year.

Salaries and Expenses were allocated a total of $4,047,700, a decrease of $11,738 from the comparable 1948 appropriation.

The Office of International Health Relations is granted $285,000, which is $67,920 below 1948.

President's Communications.—During the life of the Eightieth Congress, the President has submitted to it five health messages recommending the establishment of a national sickness insurance program. It is rumored that he is preparing another. He has also written a letter to the Federal Security Administrator directing him to prepare a ten year health program. The Administrator is preparing to comply with this request and has invited a group of public spirited persons (the original group included only one physician) to assist him in conducting a National Health Assembly May 1-4, 1948. A similar conference was held in 1938.

Health Activities of Washington Groups.—One hundred and twenty-five national organizations are sponsoring a National Conference on Family Life to be held in Washington, D.C., May 6-8, 1948. Deliberations will be grouped in the following manner: premarital and early years of marriage; the family with small children; the family with adolescents, and the aging family.

There are other groups in the capital which are functioning with some phase of health as one of their considerations: (1) the National Security Resources Board (not related to any other agency) is organizing a medical division to study the resources of the country. Dr. Paul R. Hawley is advising in the development of the division; (2) the Research and Development Board is organized to study the medical research within the defense forces. It serves as a coordinating body of the armed services and is organizing a medical science committee, which it is hoped will be functioning before summer; (3) the Civil Aeronautics Administration has a medical division which formulates standards for physical examination of applicants for filing licenses.

The Brookings Institution has recently completed a study of health conditions for the Senate Committee on Labor and Public Welfare. A copy of the conclusions and recommendations was distributed with a recent bulletin from the Washington office. The Institution is also collaborating with the Hoover Committee, which is planning a reorganization of the Executive Department of the national government. It is collecting data on health activities.

The Atomic Energy Commission has an active health section.

The Citizens' Advisory Council is an organization set up by the Senate Committee on Finance. The Chairman is Edward R. Stettinius, former Secretary of State. Its function is to study the social security program and make recommendations for its improvement.

Office Activities.—During the year, the Washington office prepared and distributed eighteen regular bulletins and fourteen special bulletins to a mailing list that now surpasses 2,000. The list contains the names of members of the Council on Medical Service, the Board of Trustees and the House of Delegates and names submitted during the year by officers of state medical associations. A few have been added by personal request or at the suggestion of another subscriber. Recently a "multilith" was installed and has proved to be of great convenience in the preparation of the bulletins; they are much improved in appearance and are mailed more promptly. The bulletins are issued with no attempt at regularity, but average about one every ten days. Requests for assistance and advice, both from members of Congress and from government agencies, are increasing materially as are requests from physicians and organizations throughout the country for information not only on legislative matters but on a variety of other aspects of medical legislation and public health.

Respectfully submitted,

JAMES R. McVAY, Chairman.
A. W. ADSON, Vice Chairman.
THOMAS A. McGOLDRICK.
E. J. McCORMICK.
WALTER B. MARTIN.
ELMER HESS.
JESSE D. HAMER.
EDWARD L. BORTZ.
H. H. SHOULDERS.
GEORGE F. LULL.
JOSEPH S. LAWRENCE,
Director, Washington Office.
MR. THOMAS A. HENDRICKS.
Secretary.

RESOLUTIONS SUBMITTED BY CONSTITUENT ASSOCIATIONS

The following resolutions for submission to the House have been sent in by the Executive Secretary of the Missouri State Medical Association:

Resolution on Practice of Medicine for Profit

WHEREAS, There is an ever increasing tendency on the part of hospitals and medical schools throughout the United States to engage in the practice of medicine for profit; and

WHEREAS, This corporate practice of medicine is a professional evil second only in its consequences to socialized medicine; and

WHEREAS, Such practice constitutes not only exploitation of the medical profession but perhaps also of the patient; therefore be it

Resolved, That the House of Delegates of the Missouri State Medical Association in convention assembled condemn the practice of medicine for profit by either hospital or medical school; and be it further

Resolved, That our Delegates to the American Medical Association be instructed to present this information to the House of Delegates of the American Medical Association; and be it further

Resolved, That the American Medical Association remove every hospital engaged in the practice of medicine from its list of hospitals approved for internship and residency training; and be it further

Resolved, That the American Medical Association remove any offending medical school from its list of institutions approved for medical teaching.

Resolution on Nonprofit Prepayment Medical Care Plans

WHEREAS, The American Medical Association on many occasions has encouraged the formation of nonprofit voluntary prepayment hospitalization and medical service plans by its constituent state and county societies; and

WHEREAS, These constituent state and county societies have participated in the formation and development of nonprofit voluntary hospitalization programs (nationally known as Blue Cross hospitalization plans) and nonprofit medical surgical service programs (nationally known as Blue Shield plans); and

WHEREAS, The action of the American Medical Association in canceling its contract with the Chicago Blue Cross and Blue Shield plans which provided hospitalization and medical surgical coverage for the employees of the American Medical Association and in contracting with a commercial insurance company for the same coverage was not in the best interest of the medical profession as a whole or the voluntary Blue Cross and Blue Shield plans; and

WHEREAS, This action of the American Medical Association has already by adverse publicity caused serious embarrassment to the Blue Cross and Blue Shield plans; therefore be it

Resolved, That the House of Delegates of the American Medical Association instruct its Board of Trustees to immediately cancel the contract with the commercial insurance company and reinstate the contract with the Blue Cross and Blue Shield plans.

Digitalis.—The foregoing observations, we believe, lend support to the position that the sequence employed in the most common practice of trying digitalis first and then adding a diuretic, if necessary, is in need of revision. In the concept of treatment, the indications are that the order should be reversed; an effective technic for dehydration with salt restriction, free supply of water and a potent diuretic become the base of the system; digitalization becomes an auxiliary or accessory measure, without value in many but of some use in others, and essential in a certain group, especially those with auricular fibrillation. From the standpoint of results, this seems to be a more fruitful approach; there is indication that the incidence of improvement in congestive failure may be much higher from an effective system of dehydration alone than from digitalis alone.—Gold, H., and others: *American Journal of Medicine,* December 1947.

ORGANIZATION SECTION

Council on Medical Service

Rocky Mountain Regional Conference on Medical Service, Denver
May 19-20, 1948

The Rocky Mountain Regional Conference is open to physicians from a six state area--Colorado, Kansas, Nebraska, New Mexico, Utah and Wyoming. The conference will be under the direction of James R. McVay, Chairman of the Council on Medical Service. John S. Bouslog, M.D., of Denver, president of the Colorado State Medical Society, will open the conference with an address of welcome.

Cooperating with the Council on Medical Service are the Council on Industrial Health and the Committee on Rural Medical Service. The two day program will include a general session on medical organizational problems and sessions of rural health, industrial health problems, prepayment medical care plans and rehabilitation.

Key speakers for the conference are: Dr. A.C. Sudan, of Denver, the Association's General Practice Medalist for 1947, speaking on "The General Practitioner"; Mr. Jack Foster, editor of the *Rocky Mountain News* (Denver), "The Modern Newspaper Looks at the Modern Doctor," and Dr. Harold C. Lueth, dean of the University of Nebraska School of Medicine, "Medicine in the next Emergency."

The Rural Health session will feature a panel discussion on the past and future of state rural health programs, with special emphasis on the responsibility of local communities in the planning and development of such programs. Dr. Fred A. Humphrey of Fort Collins, Colo., member of the Committee on Rural Medical Service of the American Medical Association, will preside.

Industrial health problems in the Rocky Mountain area will be highlighted at the morning session, May 20. Dr. George H. Phelps of Cheyenne, Wyo., will preside. The six presentations by outstanding speakers will underscore the principal directions in which organized community effort is necessary if the objectives of industrial health are to be realized. It will also be pointed out that the highest type of medical leadership and diplomacy is needed to assure that the essential interests of the worker, employer and physician are properly understood and safeguarded.

A rehabilitation round table is scheduled for the second afternoon and will be moderated by Dr. Atha Thomas of Denver. Community needs and facilities for rehabilitation of the physically handicapped will be reviewed. Physicians, industrialists and community leaders are expected to be in attendance. A demonstration of new devices and proper fitting of artificial limbs will be featured by Dr. Thomas and Mr. Chester Haddan, also of Denver.

Dr. A.J. Offerman, president of Nebraska Medical service, will open the discussion of prepayment medical care plans, to be participated in by representatives of plans in the six states.

Washington Letter

(From a Special Correspondent)

May 5, 1948.

Opposes Induction of Officers Over Draft Age

The American Medical Association asked Congress, in testimony presented to the House Armed Services Committee by Dr. James C. Sargent, to prevent a disproportionate number of physicians being inducted in the armed forces in the event of war. The legislators were requested not to act on provisions in the draft bill calling for induction of physicians beyond the 19 through 25 draft age group. Under the measure, doctors, dentists and veterinaries would be eligible for a two year draft through age 44.

National Health Assembly

Dr. Edward L. Bortz, President of the American Medical Association, was on the panel of speakers at the four day National Health Assembly which convened in the Capital. Others were Dr. Morris Fishbein, Editor of THE JOURNAL; Dr. E. Brock Chisholm, executive secretary of the Interim Commission for the World Health Organization; Dr. V. A. Getting, president of the Association of State and Territorial Health Officers, and Dr. Leonard A. Scheele, Surgeon General, U. S. Public Health Service. Federal Security Administrator Oscar R. Ewing, who called the assembly to obtain suggestions for the ten year national health program proposed by President Truman, said he hoped the conference would result in more intensive community attacks on health problems and that it would create greater harmony between diverse medical groups.

Cancer Institute Opens Study of Occupational Cancer

Dr. W. C. Hueper of New York, cancer pathologist, will direct the occupational cancer laboratory at Georgetown University Medical School, which is part of a new program of the National Cancer Institute. A new section will conduct research on occupational cancer hazards and try to determine what they are and how they can be prevented.

St. Elizabeths Hospital Lauded in Report

The mental hygiene division of the Federal Security Agency reports that St. Elizabeths (mental) Hospital in the nation's capital is not only the least crowded institution of its kind in the country but spends nearly twice as much time as any state mental hospital for the care of its patients. The report also stated that the hospital has 2.6 patients per employee while in many state institutions there are as many as 9 patients for each worker. Expense per patient is reported at $1,058 annually compared with a per capita expense of $2,300 in most Southern states. In addition, while overcrowding has increased elsewhere, St. Elizabeths is said to be the only one of eight hospitals with room for more patients. Recently a House subcommittee reported to the full Education and Labor Committee an amended bill to authorize

St. Elizabeths to admit and treat patients on voluntary applications, a plan long sought by Dr. Winfred Overholser, the superintendent.

Admission of Displaced Doctors, Dentists and Medical Nurses Sought

A House Judiciary Committee broke a long deadlock and sent to the House for action the bill to permit 200,000 displaced Europeans to come to the United States. Included would be doctors, dentists, nurses and persons with scientific, educational and technologic qualifications. The bill would permit entry of this number of persons over two years and charge them to future immigration quotas of their native countries. President Truman had advocated admitting 400,000 in four years.

Booklet for Veterans Who Have Tuberculosis

The Veterans Administration is sending a booklet to the 13,369 tuberculous patients in veterans' hospitals. Dr. John B. Barnwell, chief of the Veterans Tuberculosis Service, said that the disease kills almost 200 patients a month in the agency hospitals, and he claimed that this figure can be cut sharply. Patients must be instructed in proper care and diet, must not become despondent over the long recovery period necessary for a cure, must not be guilty of self neglect and must have their morale raised. To get rid of tuberculosis, he said, means rest, proper care in a hospital, not at home, and proper food.

Medical Legislation

STATE LEGISLATION

Kentucky

Bills Enacted:—S. 135 was approved March 25. It provides for the creation of a board of examiners for the certification of clinical psychologists. S. 199 was approved March 29. It creates a state tuberculosis sanatorium commission to have charge of the government and operation of all of the state tuberculosis sanatoria and to employ and fix the compensation of the medical director of each sanatorium. Such medical director must be a member in good standing of the Kentucky State Medical Association or the National Tuberculosis Society and must have had at least five years' clinical experience in the field of tuberculosis.

Massachusetts

Bill Introduced.—H. 2139 has been introduced as a substitute for a number of pending proposals relating to antivivisection. This proposal would provide for an investigation and study by an unpaid special commission relative to the procurement and treatment of animals for medical experimentation and study.

Bill Enacted.—H. 934 was adopted Feb. 19, 1948. It enacts a resolution to the Congress of the United States memorializing Congress to enact legislation providing for the establishment of a National Science Foundation with the appropriation of sufficient funds to encourage scientific research to be conducted which shall be made available to the directors of the armed forces and insure national security in the future.

Mississippi

Bills Enacted.—H. 818, approved April 9, provides for an appropriation to the Mississippi commission on hospital care for the purpose of building, erecting and equipping hospitals and other facilities within the state of Mississippi. H. 1008, approved April 9, provides for an appropriation to the Mississippi commission on hospital care for the purpose of building, erecting and equipping and contributing to the building, erecting and equipping of hospitals within the state. H. 1047, approved April 9, provides for an appropriation for assistance in carrying out a program of coordinated school, health and nutrition services throughout the state, in cooperation with the international health division of the Rockefeller Foundation and the general education board. S. 229, approved April 10, prohibits the operation of any store alleged to be a drug store or pharmacy unless the owner or operator be, or shall have in his regular employ therein, a registered pharmacist or a licensed physician on duty. S. 450, approved April 10, provides for the appointment of the State Board of Dental Examiners by the Governor from a list to be submitted by the Mississippi Dental Association. S. 453, approved April 14, enacts an enabling act for the organization and operation of nonprofit hospital, medical and surgical service corporations.

New Jersey

Bill Introduced.—A. 467 proposes the creation of a board of chiropractic examiners to regulate and license practitioners of that art. Chiropractic is defined as the theory and practice of nerve impulse control by vertebral adjustment by hand only, for the purpose of removing a cause of disease. The proposal would authorize licentiates to use the Neurocalometer, x-ray and other instruments necessary, solely for the purpose of diagnosis or analysis.

Bill Enacted.—A. 105, which has become chapter 34 of the Laws of 1948, proposes to require persons desiring to practice dental hygiene to first obtain a license permitting such practice from the State Board of Registration and Examination in Dentistry.

Rhode Island

Bill Introduced.—H. 966 proposes certain amendments to the hospital licensing law, among which is the definition of a hospital as "an institution for the lodging, care and treatment of persons suffering from disease or other abnormal physical or mental conditions." The proposal would exempt convalescent homes from its operations and would also provide that no person shall obtain medical or surgical treatment under false representations as to his financial condition from any hospital or outpatient department or dispensary licensed by the hospital licensing law.

Bill Enacted.—H. 572, approved April 27, amends the law relating to professional nursing by adding a few sections to such law which regulate the practice of practical nursing. The term practical nurse is not defined by the law.

South Carolina

Bill Introduced.—H. 1652 proposes, among other things, that the Medical College of South Carolina may participate in federal funds that may be available to assist it in financing the construction and equipment of a teaching hospital.

Bills Enacted.—H. 1222, which has become Governor's Act 1116 of the Acts of 1948, provides for the establishment of eight scholarships at the Medical College of the State of South Carolina of the value of $75 per month plus tuition, conditioned on the recipient doing private general medical practice during one calendar year for each year of the scholarship in some rural community in the state designated by the state board of health. H. 1413, adopted April 10, directs the Board of Naturopathic Examiners of the State of South Carolina to immediately undertake a study of the various licenses and personal qualifications of applicants heretofore licensed to practice naturopathy in the state and the propriety of canceling any licenses erroneously obtained. The Board is further directed to immediately cancel any licenses of licensees to practice naturopathy, if said Board in its discretion decides that said license should be canceled for any reason; and in checking the qualifications of the licensees the Board shall take into consideration the information developed by the Law Enforcement Division of the State of South Carolina and such other information as said Law Enforcement Division may be able to obtain with reference thereto. The board of Naturopathic Examiners is directed to submit to the General Assembly of South Carolina on its opening day in January 1949 a full and complete written report concerning the matter. H. 1803, adopted April 10, establishes, by resolution, a special committee for the purpose of studying and making an investigation into the need and feasibility of establishing an institution, either separately or in connection with any existing state institution, for the purpose of treating chronic alcoholic addicts. S. 722, which has become Governor's Act 1193 of the Acts of 1948, authorizes any department, commission, board or officer of the state to have microfilms made of any part of its records and provides that such microphotographs or microphotostatic copies of such records may be introduced in evidence in any court of law in the state to the same extent as the original records would have been.

GOVERNMENT SERVICES

ARMY

DR. BLAKE APPOINTED CHAIRMAN OF NEW COMMITTEE

Dr. Vannevar Bush, chairman, research and development board of the national military establishment, announces the appointment of Dr. Francis G. Blake, Sterling Professor of Medicine at Yale University, as chairman of the newly formed Committee on Medical Science.

The Committee on Medical Science of the Research and Development Board will be concerned with the survey, analysis and evaluation of all aspects of research and development activities in the field of medical and allied sciences, within the Military Establishment. As far as research and development activities are concerned, the Research and Development Board Committee on Medical Science will work closely with the Hawley Committee, appointed by the Secretary of Defense to review all activity in the military establishment related to medicine and allied sciences. Dr. Blake is well known for his investigations on pneumonia, penicillin therapy and epidemic disease. He is also consultant to the Surgeon General of the Army and of the Army Epidemiological Board, and a member of the National Research Council Committees on Medicine and Chemotherapy. In addition to the chairman, the Research and Development Board Committee on Medical Science will be composed of two civilian members selected from the field of medical science and not more than two members each appointed from the Departments of the Army, Navy and Air Force.

THE JOHN SHAW BILLINGS EXHIBIT

The fifth exhibit in the series "Famous Men of Army Medicine" memorializes Col. John Shaw Billings, under whose leadership for the thirty years ending in 1895 the Army Medical Library grew from a small beginning to more than 300,000 volumes and pamphlets and more than 4,000 portraits of physicians. Dr. Billings also developed the Index Catalogue of the Library of the Surgeon General's Office and planned Johns Hopkins Hospital. He saw four years of active service in camps and hospitals during the Civil War, performing many major operations after the Battles of Chancellorsville and Gettysburg. He is said to have been the first surgeon in the war to successfully excise the ankle joint; this procedure had been done only two or three times previously in the history of surgery. Numerous honorary degrees and memberships were conferred on Dr. Billings, and during World War II an Army General Hospital in Indiana was named in his honor. In commemorating the thirty-fifth anniversary of his death the Specimen Fasciculus, issued by him in Washington, D.C., in 1876 as the prospectus of the great Index-Catalogue, was on exhibit in the Library of Congress March 6-12.

COURSE IN NUCLEAR PHYSICS

The total attendance at the five day course on the medical aspects of nuclear energy given at the Army research and graduate school, Washington, D. C., was five hundred and thirty-eight as of February 6, including twenty-seven persons from various medical schools throughout the country and four from the Royal Army Medical Corps; others taking the course were from the armed services, Public Health Service, Veterans Administration and the Atomic Energy Commission.

INSTITUTE OF PATHOLOGY

Lieut. Col. Carl F. Tessmer, MC., of the staff of the Institute of Pathology, left February 28 for an extended tour of duty with the National Research Council, Tokyo, Japan.

Col. J. E. Ash, retired, scientific director of the American Registry of Pathology, spoke in March at the Tulane University of Louisiana School of Medicine, New Orleans, on the pathology of rickettsial diseases, and before the New Orleans Parish Medical Society on the reticuloendothelium in infections.

Col. Kenneth F. Ernst, chief of laboratory services, Letterman General Hospital, San Francisco, is now on a three months' research and study project at the Institute of Pathology.

HOW TO REMAIN AT NORMAL WEIGHT

Dr. Louis H. Newburgh, professor of clinical investigation, University of Michigan Medical School, Ann Arbor, in a lecture before Army Medical officers at the Army Medical Center, Washington, D.C., in March concluded that there is only one way to get fat and that is by overeating. It was long supposed, he said, that certain conditions of obesity—Cushing's syndrome—resulted from too little secretion of one of the hormones from the pituitary gland. Dr. Newburgh said that anterior pituitary deficiency does cause a condition which can be mistaken for obesity, especially in women, but there is no notable increase of weight. The abdominal walls are weakened so that the internal organs tend to bulge outward, but there is actually no more fat than before. Another hypothesis which seemed valid for a time was that some states of obesity were due to injuries of the hypothalamus. Animal experiments have not shown any influence of the hypothalamus on the deposition of fat. The hypothalamus in some human beings is affected by encephalitis, and some of these victims become obese. While this has been taken to prove the hypothalamic hypothesis, the facts are, he said, that in the majority there is no change of weight and statistical studies give no validity to the assumption. Dr. Newburgh discussed other theories on the cause of obesity before making the conclusion that overeating is the only way to get fat. He also said that a low caloric diet is more important than exercise as a weight-reducing measure, and that it is necessary to walk 36 miles (58 kilometers) to rid the body of 1 pound (0.5 Kg.) of weight. He warned against giving thyroid and other preparations except in exceptional circumstances; they seldom do any good for a protracted period, and they confirm the patient in his belief that his fatness is due to a cause beyond his control; consequently he eats as much and remains as lazy as before.

NAVY

RESEARCH ON RESPIRATORY DISEASES

With the transfer of the Naval Medical Research Unit 4 from Dublin, Ga., to Great Lakes, Ill., the unit will emphasize research on respiratory diseases, in preparation for any contingency which may arise from reenactment of selective service or from universal military training. The Navy maintains a similar research unit on the West coast for control of respiratory infections, and one in Cairo, Egypt, for the study of tropical diseases. Arrangements are being made for a three man team from the Department of Agriculture to join the research unit at Cairo to collaborate on the control of disease-conveying insects. This is the second time that scientists of the Department of Agriculture have been sent to the unit in Cairo, the first instance being for the control of flies and mosquitoes. This group from the Department of Agriculture became famous in developing effective control of typhus by the control of lice with DDT.

HUMAN ENGINEERING

The Bureau of Medicine and Surgery is preparing an exhibit for the annual convention of the Aero-Medical Association in Toronto, Canada, June 15-18. The exhibit, "Human Engineering," will show the advances in naval aviation medicine in adapting pilots to flight and in designing equipment to increase human tolerance to altitude and acceleration. The problems of supersonic speed of aircraft have been foreseen by the Navy research personnel, and this exhibit will demonstrate the accomplishments and aims of this branch of research.

COURSES OF INSTRUCTION

The following Naval Medical Officers, having completed courses of instruction as indicated, have been assigned to duty: Comdr. John R. Cavanagh, from residency training in psychiatry at the Public Health Service Hospital, Fort Worth, Texas, to duty at Portsmouth, N.H.; Lieut. Alfred B. Mason, from training in tropical medicine at Naval Medical School, Bethesda, Md., to Camp Lejeune, N.C.; Lieut. Moses E. Rice Jr., from residency training in general surgery at the Naval Hospital, Philadelphia, to the Naval Hospital, Key West, Fla.; Lieut (jg) Elbert C. Brinning Jr., U.S.N.R., from basic refresher course, Naval Medical School, Bethesda, Md., to Marine Corps District Headquarters, Recruiting Station, Newark, N.J.; Lieut. (jg) Donald W. Drew, U.S.N.R., from basic refresher course, Naval Medical School, Bethesda, Md., to Naval Base, Long Beach, Calif.

PERSONAL

Capt. Robert L. Ware (M C) will be a delegate to the sixth Decennial Conference for Revising the International List of Causes of Death in Paris, France, April 26-30. The session will be under the auspices of the Interim Commission of the World Health Organization. The conference this year will consider including causes of sickness and injury as well as causes of death.

Lieutenant (jg) Lowell K. Cunningham (MC), of San Diego, Calif., has been appointed to the permanent grade of lieutenant (jg) on completion of an internship at the Naval Hospital, San Diego.

Lieut. Walter H. Jarvis Jr., Grand Saline, Texas, a former officer of the regular Navy, has accepted a commission in the Medical Corps Reserve and has been ordered to duty at the Naval Hospital, Houston, Texas.

Rear Admiral Joel T. Boone was awarded the honorary degree of doctor of laws by Hahnemann Medical College, Philadelphia, March 18, on which occassion he delivered the commencement address. Dr. Boone is a graduate of Hahnemann Medical College.

NAVY OFFICERS APPROVED FOR GRADUATE TRAINING

The Advisory Board of the Bureau of Medicine and Surgery has approved the following officers for graduate training:

Capt. Martin V. Brown, instruction in dermatology and syphilology, Northwestern University, Chicago.
Capt. Gordon H. Ekblad, instruction in dermatology and syphilology, Northwestern University.
Comdr. John L. Flannery, course in pediatrics, University of Pennsylvania Graduate School of Medicine.
Comdr. George J. Kohut, additional training in obstetrics and gynecology, Naval Hospital, Portsmouth, Va.
Comdr. Emmet F. Norwood, residency in surgery, Naval Hospital, St. Albans, N. Y.
Comdr. Roy R. Powell, residency in ophthalmology, Naval Hospital, Oakland, Calif.
Comdr. John D. Walters, course in dermatology and syphilology, University of Pennsylvania Graduate School of Medicine.
Comdr. Karl V. Kaess, instruction in dermatology and syphilology, Northwestern University.
Comdr. William N. New, instruction in dermatology and syphilology, Northwestern University.
Comdr. Arthur L. Schultz, additional training in neurosurgery, Naval Hospital, Long Beach, Calif.
Comdr. William O. Umiker, residency in pathology, Naval Medical School, Bethesda, Md.
Comdr. Harry James Alvis, preventive medicine, Harvard University School of Hygiene and Public Health, Boston.
Comdr. Sylvester F. Williams, fellowship in radiology, University of Chicago.
Lieut. Comdr. William C. Cantrell, children's orthopedics, State University of Iowa.
Lieut. Comdr. Jacob J. Robbins, residency in internal medicine, Naval Hospital, Chelsea, Mass.
Lieut. Comdr. Henry S. Colony, course in neurology, New York Neurological Institute.
Lieut. Comdr. Charles H. Gilliland, residency in obstetrics and gynecology, Naval Hospital, Bethesda, Md.
Lieut. Comdr. Wilson J. Huston, residency in obstetrics and gynecology, Naval Hospital, Bethesda, Md.
Lieut. Comdr. J. D. Langston, fellowship in pathology, Mayo Clinic, Rochester, Minn.
Lieut. Caesar F. Orofino, residency in orthopedic surgery, Naval Hospital, St. Albans, N. Y.
Lieut. Robert E. Switzer, residency in psychiatry, Colorado Psychopathic Hospital, Denver.
Lieut. Frank A. Cerzosimo, course in pediatric and obstetric anesthesia, the Montreal Children's Hospital and the Maternity Pavilion of the Royal Victoria Hospital, Montreal, Canada.
Lieut John W. Reece, aviation medicine, Naval Air Station, Pensacola, Fla.
Lieut. Thomas E. Atkinson Jr., residency in ophthalmology, Naval Hospital, Bethesda, Md.
Lieut. (jg) Carleton J. Brown, residency in pediatrics, Naval Hospital, Chelsea, Mass.
Lieut. (jg) Tom C. Hardy, fellowship in anesthesiology in a civilian institution.
Lieut. (jg) Raleigh M. Hood, residency in surgery, Naval Hospital, San Diego, Calif.
Lieut. (jg) Theodore H. Wilson Jr., residency in surgery, Naval Hospital, Chelsea, Mass.
Lieut. (jg) John G. Esswein, residency in internal medicine, Naval Hospital.
Lieut. (jg) Robert W. Sharp, residency in internal medicine, Naval Hospital, San Diego, Calif.
Lieut. (jg) James C. Marr, residency in children's orthopedics, St. Charles Hospital, Brooklyn.
Lieut. (jg) William Mayer, fellowship in psychiatry, Langley Porter Clinic, San Francisco.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

First Q Fever in San Francisco.—Dr. Jacob C. Geiger, director of public health, City and County of San Francisco, on April 20 reported a case of Q fever in a man, a resident of California for three years. Presumably this is the first case reported in San Francisco. The patient was admitted to the San Francisco Hospital, Stanford Medical Service, March 11 and was discharged April 2. He had been in the northern part of California about ten days prior to the onset of his illness.

CONNECTICUT

Alcohol Studies.—The Summer School of Alcohol Studies conducted by the Laboratory of Applied Physiology of Yale University will hold its sixth annual session from July 9 to August 6. The 1948 course provides a special curriculum for physicians and others professionally concerned with the treatment and care of alcoholic persons and will include work at the Yale Plan Clinic in New Haven. The school is under the directorship of E. M. Jellinek, Sc.D. The lecturers, although mainly from the faculty of Yale University, include representatives of other institutions of education, research, treatment or rehabilitation. A prospectus may be obtained from the Executive Secretary, Summer School of Alcohol Studies, Yale University, 52 Hillhouse Avenue, New Haven, Conn.

ILLINOIS

Rabies in Illinois.—The State Department of Public Health reports that rabies is widespread among dogs in northern sections of Illinois. There is also danger of the disease's becoming prevalent among foxes, one infected animal having been found in Whiteside County. This fox had bitten a farm worker and had attacked a herd of dairy cattle on the same farm before it was killed. Last year more than 3,600 persons in Illinois were given the Pasteur treatment for the prevention of the disease. The *Chicago Tribune* of April 22 reported that 5 men had been bitten by a rabid dog in the vicinity of 51st Street and Woodlawn Avenue, Chicago. Orland Township was placed under rabies quarantine April 21; other townships in Cook County were placed under quarantine earlier this year (THE JOURNAL, February 28, p. 634).

Chicago

Personal.—Dr. Italo Frederick Volini has been honored with a membership in the Medical Society of Bologna, Italy, as of February 20.

University Receives Largest Cancer Grant.—The University of Chicago has received a check for $190,000 from the American Cancer Society, Inc., for use in cancer research. This is the largest such grant ever made by the American Cancer Society, Inc., according to *Illinois Cancer News*, April 1948.

Beds Available at Sanitarium.—La Rabida Jackson Park Sanitarium, on the lake front in Jackson Park, is now prepared to admit a number of acutely ill patients suffering from rheumatic fever or rheumatic heart disease. La Rabida is a charitable, nonprofit, nonsectarian institution admitting Illinois patients aged 4 to 12 years, inclusive, regardless of race, color or creed. Physicians who desire admission for their patients should contact the medical director or the director of social service. While the patient is in residence the referring physician is invited to attend grand rounds on Wednesday from 3 to 5 p.m. A complete report of medical progress will be submitted to the referring physician on the discharge of his patient.

IOWA

Dr. Bean Appointed Head of Internal Medicine.—Dr. William B. Bean, associate professor of medicine at the University of Cincinnati College of Medicine, has been appointed to succeed the late Dr. Fred M. Smith, head of the Department of Internal Medicine in the State University of Iowa College of Medicine City, Iowa. Dr. Bean received his medical degree at the University of Virginia, Charlottesville, in 1935. He went to Cincinnati as a senior medical resident at Cincinnati General Hospital in 1938. After two years as assistant visiting physician at Hillman Hospital, Birmingham, Ala., he returned to Cincinnati in 1942 as assistant professor of medicine at the University of Cincinnati College of Medicine, where in 1946 he was appointed associate professor.

KANSAS

Annual Meeting of State Medical Society.—The Kansas State Medical Society will meet in annual session May 10-13 at the Arcadia Theater, Wichita. Out of state speakers include:

A. Carlton Ernstene, Cleveland, Hypertension.
Arild E. Hansen, Galveston, Texas, The Child with Rheumatic Fever.
Waltman Walters, Rochester, Minn., Malignant Lesions of the Stomach.
Edward B. Tuohy, Washington, D.C., Choice of Anesthetic Agents and Procedures.
Baldwin L. Keyes, Philadelphia, Management of Neuroses.
Henry M. Winans, Dallas, Texas, The Physical Examination.
Willis E. Brown, Iowa City, Iowa, Management of Abortion.
Richard K. Gilchrist, Chicago, Prognosis in Carcinoma of Rectum.
Edward H. Rynearson, Rochester, Minn., Hyperparathyroidism and Hypoparathyroidism.

Round Table Luncheons will be held. Technical exhibits and scientific movies will also be shown. The annual banquet will be held on the Roof Garden, Broadview Hotel, at 7 p.m. Wednesday. The Woman's Auxiliary to the state society will meet in conjunction with the state society.

MASSACHUSETTS

Society News.—At the annual meeting of the Norfolk District Medical Society at the Hotel Kenmore, Boston, May 12, at 5:15 p.m. Karl T. Compton, Sc.D. president, Massachusetts Institute of Technology, Cambridge, will speak on "Lessons from the Story of the Atomic Bomb," following the dinner at 7 o'clock.

Dr. Moore Named Mosley Professor of Surgery.—Dr. Francis D. Moore, Brookline, has been appointed surgeon in chief of the Peter Bent Brigham Hospital and Mosely professor of surgery at the Harvard Medical School, Boston, where he is now assistant professor of surgery. He is also assistant surgeon at the Massachusetts General Hospital, consulting surgeon at the Massachusetts Eye and Ear Infirmary and member of the associate staff of Palmer Memorial Hospital. He succeeds the late Dr. Elliott C. Cutler. Dr. Moore is a graduate of Harvard Medical School, 1939. He joined the Harvard medical teaching staff in 1941 and became assistant professor of surgery in 1947.

MICHIGAN

Personal.—Dr. John M. Weller, Ann Arbor, has been awarded the first Alfred Stengel Research Fellowship by the American College of Physicians. He will undertake studies on the ionic patterns of intracellular fluids and their influence on enzymatic reactions.

Dr. Stapleton Made Emeritus Professor.—After forty-five years of association with Wayne University, Dr. William J. Stapleton Jr., former associate dean of the Wayne University College of Medicine, Detroit, has been appointed "Emeritus Professor of jurisprudence, ethics and economics" by the Detroit Board of Education. Dr. Stapleton was a member of the permanent staff of the college from 1914 until he retired in July 1947.

MISSISSIPPI

Annual Meeting of State Medical Association.—The Mississippi State Medical Association will hold its annual meeting May 11-13 at the Robert E. Lee Hotel, Jackson, under the presidency of Dr. Paul G. Gamble, Greenville. The Ewing Fox Howard Oration will be given by Dr. Everett D. Sugarbaker, Jefferson City, Mo., on "Cancer of the Breast" at the Tuesday evening session. The out of state speakers will be:

James G. Hughes, Memphis, Tenn., Care of the Premature Infant.
Dean F. Smiley, American Medical Association, Chicago, Responsibilities of the Private Physician in the School Health Program.
James V. Lowry, U.S. Public Health Service, Bethesda, Md., Mental Hygiene Program at a State and Local Level.
George E. Shambaugh Jr., Chicago, Treatment of the Deaf and Hard of Hearing Patient.
Shelley R. Gaines, New Orleans, Diagnosis of Common Motor Anomalies.
William B. Clark, New Orleans, Management of Common Motor Anomalies.
Winchell McK. Craig, Rochester, Minn., Operation on the Sympathetic Nervous System for Relief of Hypertension.
E.W. Alton Ochsner and Michael E. DeBakey, New Orleans, Bronchogenic Carcinoma.
C. Thorpe Ray, New Orleans, Management of Congestive Heart Failure; the Role of Diuretics.
Edward S. Miller, Atlanta, Ga., Pathogenesis, Diagnosis and Treatment of the Acute Phase of Poliomyelitis.

The annual banquet will be at the Heidelberg Hotel Wednesday at 7:30 p.m. The Woman's Auxiliary of the state medical association will meet May 11-12 at the Robert E. Lee Hotel.

NEW YORK

Emergency Medical Care.—On April 1 the Medical Society of the County of Monroe instituted a twenty-four telephone service to meet the demands of the public for emergency medical care. Physicians are provided from volunteer groups in each of the four sections of the city.

Society Presents Past President's Keys.—The Medical Society of the County of Erie, at a meeting in the Hotel Statler, Buffalo, February 24, presented Past President's Keys to the nineteen living past presidents of the society. Hereafter a Past President's Key will be presented to the retiring president at the annual meeting in December as a token of appreciation of his service to organized medicine in Erie County.

Bequest to University of Rochester.—A sum of about $1,500,000 was bequeathed to the University of Rochester for research in the medical sciences by the will of Ernest L. Woodward, LeRoy. The bequest will be used to strengthen the school's work in training and research in human health and welfare. Last year Mr. and Mrs. Woodward gave the university a $500,000 estate in LeRoy to be used by the school of medicine and dentistry as a model center for research, diagnosis and treatment of cerebral palsy and infantile paralysis (THE JOURNAL, Jan. 25, 1947, p. 256). The center has been in operation since last October.

New York City

Schick Lecture.—The Bela Schick Lecture will be delivered by Michael Heidelberger, Ph.D., professor of biochemistry, Columbia University College of Physicians and Surgeons, in Mount Sinai Hospital May 11 at 8:30 p.m. on "Immunity as Indicated by the Formation of Antibodies."

Dr. Friedman Goes to Cleveland.—Dr. Sigmund L. Friedman, director of Sydenham Hospital, resigned effective March 15 to accept an appointment to a similar post at Mount Sinai Hospital, Cleveland. Dr. Friedman has been director of Sydenham Hospital since February 1947.

Appoint President of Mount Sinai Hospital.—Alfred L. Rose, vice president of Mount Sinai Hospital since 1945, was recently elected president to succeed George B. Bernheim, who retired from the office and was elected president emeritus, the second to be chosen for that office in the hospital's ninety-six year history. Dr. Rose has been president of the Mount Sinai Hospital School of Nursing since 1943.

Society News.—At the conference of the New York Institute of Clinical Oral Pathology, Inc., May 17, 9 p.m., at the New York Academy of Medicine Dr. Joseph L. Goldman will speak on "The Relationship of the Maxillary Antrum to Oral Surgical Problems."—The New York Dermatological Society meeting February 24 was held in honor of Dr. Howard Fox, professor emeritus of New York University College of Medicine since 1938.

Measles Epidemic.—The New York City Health Department reported April 8 that there were 6,840 cases of measles during March and 11,908 cases and 9 deaths for the first three months of 1948. In the present epidemic less than 1 child in every thousand dies of the disease. In contrast, in the 1922 epidemic there were 40,569 cases and 977 deaths, which meant that 24 of every thousand children with the disease died.

Rehabilitation Symposium.—A rehabilitation symposium has been arranged by the Medical Society of the State of New York in cooperation with the New York State Department of Health for the Nassau County Health Department and the Nassau County Medical Society at Cathedral House, Garden City, Long Island, May 25 from 2 to 5 p.m. Dr. Francis J. Carr, New York, will speak on "Rehabilitation of the Poliomyelitis Patient," and Dr. George G. Deaver, New York, on "What Can Be Done for Cerebral Palsy."

Lecture by Sir Henry Dale.—Under a grant from the Samuel H. Kress Foundation, Sir Henry H. Dale, London, past-president of the Royal Society of England, gave the first lecture on "Chemical Transmission of Nervous Effects" April 20 at the New York University College of Medicine. The lecture was under the joint sponsorship of the New York University-Bellevue Medical Center and Postgraduate Medical School, to which the foundation last month made a grant of $162,000 to be utilized in the integration and expansion of postgraduate training programs.

NORTH CAROLINA

Narcotic Violation.—The Bureau of Narcotics, Washington, D. C., reports that Dr. James M. Northington, Charlotte, pleaded guilty to an indictment charging violation of the federal narcotic law in the United States District Court at Shelby, February 27. He was placed on probation for three years and fined $500.

Course in Medical Mycology.—A month's course in medical mycology, under the direction of Norman F. Conant, Ph.D., is to be offered at the Duke University School of Medicine and Duke Hospital, Durham, June 28 to July 30. Emphasis will be on the practical aspects of the laboratory as an aid in establishing a diagnosis of fungous infection. Work with patients, cultures and laboratory animals will serve as a basis for this course. Applications will be considered in the order in which they are received, but an attempt will be made to select students on the basis of previous training and stated need for this work. A fee of $50 will be charged. Direct inquiries to Dr. Norman F. Conant, Duke University School of Medicine, Durham, N.C.

OKLAHOMA

Tumor Clinic Opens.—The St. John's Tumor Clinic, newly organized diagnostic and cancer treatment center at St. John's Hospital, Tulsa, was formally opened March 2. Although primarily designed for the care of indigent cancer patients, the clinic will be open to the general public under certain circumstances. The project is financed by the Oklahoma Division of the American Cancer Society, together with funds appropriated by Congress and administered through the Oklahoma State Department of Public Health. An executive committee of six Tulsa physicians is in charge of direction of the clinic. For the present the clinic will be in operation on Tuesday mornings only. All patients must be referred by a physician, and indigent patients will be cleared through the Tulsa County Medical Clinic. The clinic has been approved by the board of trustees of the Tulsa County Medical Society.

PENNSYLVANIA

Councilor District Meeting.—The Seventh Councilor District meeting and the Graduate Education Institute and banquet will take place May 13 in Williamsport, beginning at 9 a.m. One hour discussions, with question and answer periods on cardiovascular diseases make up the daytime program. At the dinner at 6:30 p.m. presentation of "fifty year" testimonials will be made to Dr. Saylor J. McGhee, Lock Haven, and Dr. William H. Rote, Williamsport.

Philadelphia

Personal.—Dr. Edward L. Bortz, president of the American Medical Association, was awarded the honorary degree of doctor of law March 18 at the commencement of Hahnemann Medical College and Hospital at Philadelphia.

Dr. Macfarlane Honored.—A dinner in honor of Dr. Catharine Macfarlane was given at the Warwick Hotel, April 7, sponsored by the Woman's Medical College of Pennsylvania. The date marked Dr. Macfarlane's fifty years in medicine. Three hundred guests attended. President Louise Pearce, M.D., gave the welcome and Dean Marion Fay, Ph.D., introduced the guests. Dr. Edward L. Bortz, Philadelphia, President of the American Medical Association, and Judge Dorothy Kenyon, New York, the government's representative to the United Nations on the legal status of women, were the guest speakers.

Disaster Committees Appointed.—The recently formed Atomic Energy Medical Steering Committee is setting up a program to protect the public in event of disaster. Societies represented on the committee are the county medical society, Hospital Council, 348th General Hospital Reserve and the American Red Cross. Dr. F. William Sunderman, chairman, Disaster Preparedness Committee, Philadelphia County Medical Society, has appointed six subcommittees: (1) instrumentation, to determine the existence and intensity of radioactive substances; (2) treatment of casualties, including the availability of blood and blood substitutes; (3) psychiatric, to be concerned with strengthening public morale; (4) emergency administration, to give attention to the movement of large masses of the population to safe areas; (5) epidemiology, to consider public health problems, and (6) public relations, to keep the public informed on procedure to follow in an emergency. The subcommittees made a study of each problem assigned and reported to the general committee in April.

Pittsburgh

Mellon Lecture.—Dr. Eugene F. Dubois, professor of physiology and biophysics at Cornell University Medical College, New York, will deliver the thirty-first Mellon Lecture on May 27, on "Why Are Fever Temperatures over 106 F.?" The Mellon Lectures are sustained by the heirs of the late R.B. Mellon and are sponsored by the Society for Biological Research of the University of Pittsburgh School of Medicine.

Annual Meeting of County Society.—The annual meeting of the Allegheny County Medical Society will be held May 25. A symposium in the afternoon will be devoted to the diagnosis and treatment of cancer. Speakers include:

Eugene P. Pendergrass, Philadelphia, Prevention of Cancer of the Breast.
Alexander Brunschwig, New York, Surgical Trends in the Treatment of Cancer.
Roscoe R. Spencer, U.S. Public Health Service, Bethesda, Md., Trends in Cancer Research, with Special Emphasis on the Role of Cellular Survival and Adaptation.

TENNESSEE

Radioisotopes Training Courses.—A series of three one-month training courses conducted by the Oak Ridge Institute of Nuclear Studies will be held at Oak Ridge this summer in the technic of using radioisotopes. The courses will be held June 28 to July 23, August 2 to 27 and August 20 to September 24. Application forms and additional information may be obtained from Dr. Ralph T. Overman, acting head of the institute's Department of Special Training, Box 117, Oak Ridge, Tenn. The courses will not attempt to cover any special field of application in chemistry or biology but will be based on simple chemical experiments selected and designed to give participants a maximum knowledge and ability in carrying on research with radioactive isotopes. Participants in the second of the three courses will be selected by the Atomic Energy Commission. Thirty-two participants will be selected for each course, for which a fee of $25 will be charged. Participants will be expected to pay their own travel and living expenses. Dormitory or hotel accommodations will be provided in Oak Ridge at the usual rates. The Oak Ridge Institute is composed of fourteen member universities of the South and Southeast. It utilizes facilities in the Oak Ridge Area for graduate research and instruction and is carrying on a general research and educational program in the field of atomic energy under a contract with the Atomic Energy Commission.

TEXAS

Plague Infection in Rat Fleas.—The Texas State Board of Health reported December 23 that plague infection had been found in Dawson County in a pool of 141 fleas from 14 pack rats collected October 2-3. Plague was first reported in native rodents in Texas in Cochran County in 1946 and in Dawson County in May 1947. At that time the state department of health, cooperating with the Communicable Disease Center of the U. S. Public Health Service, undertook a study in the affected counties to determine factors influencing spread of the disease. All rodent ectoparasites collected are forwarded to J. Vernal Irons, Sc.D., Director of Laboratories, Texas State Board of Health, Austin, for the identification of pathogenic organisms.

UTAH

Annual Ogden Surgical Meeting.—The third annual meeting of the Ogden Surgical Society will be held May 19-21 at the Hotel Ben Lomond in Ogden. The program includes the following guest speakers: James H. Bloomfield and Lester R. Dragstedt, Chicago; Louis A. Buie and Ralph K. Ghormley, Rochester, Minn.; Charles S. Cameron, New York; I. Mims Gage, New Orleans; George Crile Jr., Cleveland; Emile F. Holman, San Francisco; Howard P. Lewis, Portland, Ore., and Robert A. Moore, St. Louis. The meeting is open to all physicians who are members of their respective county societies. There is no registration fee. Hotel reservations may be made through Dr. Douglas C. Barker, 727 Eccles Building, Ogden.

WEST VIRGINIA

Home Town Medical Care for Veterans.—The new agreement between the Veterans Administration and the West Virginia State Medical Association, providing for continued home town medical care for veterans, has been approved effective April 1. The fee schedule which surplants the one formerly in force was mailed before April 1 to each of the nine hundred and six members of the association who participate in the program.

State Health Conference.—The West Virginia State Health Conference will be held May 27 at Hotel Prichard, Huntington. Speakers will include:

Dr. Royd R. Sayers, Washington, D. C., United Mine Workers of America Welfare and Retirement Fund.
Robert Koopman, Ph.D., Lansing, Mich., School Health Services.
Roscoe P. Kandle, New York, Health Survey in West Virginia.
Felix J. Underwood, Jackson, Miss., Problems of Improving the Supply of Professional Personnel.
Miss Donna Pearce, Richmond, Va., Newer Trends in Public Health Nursing in the Total Health Program.
Dean W. Roberts, Baltimore, Control of Chronic Diseases.
Mr. Elton D. Woolpert, Washington, D. C., Current National Health Legislation.

WISCONSIN

Marquette University Alumni Clinic.—The Spring Clinic of the Marquette University Alumni will be held May 13 at the Milwaukee County Hospital in the morning; and there will be a program beginning at 2 p.m. in the auditorium of the medical school. Subjects to be discussed include "Gallbladder Disease with Coronary Heart Involvement," "Curtis Grafts for Hernia," "Carcinoma of the Lower Colon" and "Treatment of Deafness."

Graduate Teaching Clinics.—The Council on Scientific Work of the State Medical Society of Wisconsin has arranged three Postgraduate Teaching Clinics for June 1-3. They are scheduled at the Hotel Stoddard, La Crosse, June 1; at the Hotel Wausau, Wausau, June 2, and at the Hotel Manitowoc, Manitowoc, June 3. The teaching staff will be Drs. John W. Harris, University of Wisconsin Medical School, Madison; Arthur A. Schaefer, Marquette University School of Medicine, Milwaukee; Reynold A. Jensen, University of Minnesota Medical School, Minneapolis, and Willard O. Thompson, University of Illinois College of Medicine, Chicago. In the late afternoon of each clinic the local county medical society will present a pathologic clinical conference with all four members of the faculty as participants. The registration fee of $4, which will cover the noon luncheon, should be sent to C. H. Crownhart, Secretary, State Medical Society, 917 Tenny Building, Madison 3.

GENERAL

Anniversary of School for Mentally Deficient.—The meeting of the American Association on Mental Deficiency in Boston May 18-22 marks the one hundredth anniversary of the first school for mentally defective children in America, established in South Boston and being continued at the Walter E. Fernald State School in Waverley. All those interested are invited. For reservations for rooms write direct to the Copley Plaza Hotel.

Research on Peptic Ulcer.—A finance committee, under the chairmanship of Dr. Clifford J. Barborka, Chicago, is seeking funds to finance research in the field of peptic ulcer. A committee of the American Gastroenterological Association for the study of peptic ulcer disclosed a need for coordination of studies on peptic ulcer, and a larger number of trained investigators. The committee was empowered with three subcommittees to evaluate the three fields, vagotomy, psychosomatic phases of ulcer and hormones in ulcer research and therapy. Members of the National Committee for the Study of Peptic Ulcer are: Dr. David J. Sandweiss, Detroit; Drs. Barborka, Andrew C. Ivy and Dr. Sara Jordon, Boston; Dr. T. Grier Miller, Philadelphia, and Dr. Owen H. Wagensteen, Minneapolis.

Pediatric Meeting.—The American Pediatric Society and the Canadian Society for the Study of Diseases of Children will meet May 24-26 at the Chateau Frontenac, Quebec, under the presidencies of Dr. Grover F. Powers, New Haven, Conn., and Dr. Alan Ross, Montreal, respectively. Subjects to be discussed include the psychotherapeutic role of the pediatrician, thyroid deficiency as a factor in conditioning the development of celiac disease, angiocardiography in congenital heart disease and the Rh factor. A symposium on viruses will be held on Wednesday beginning at 9 a.m. An informal dinner at 5:30 p.m. is scheduled for members and guests of both societies. The guest speaker will be William W. Greulich, Ph.D., professor of anatomy, Stanford University School of Medicine, Stanford University-San Francisco, on "Observations on the Children of Hiroshima and Nagasaki."

Medical Librarians' Meeting.—The forty-seventh annual meeting of the Medical Library Association will be held at the Warwick Hotel, Philadelphia, May 28-30, under the presidency of Mrs. Eileen R. Cunningham, Nashville, Tenn. The fiftieth anniversary of the Medical Library Association will be commemorated in the opening session. Dr. T. Archibald Malloch, librarian, New York Academy of Medicine, and Chauncey D. Leake, Ph.D., vice president, University of Texas, Galveston, will speak. Group meetings for various types of libraries will be held Friday afternoon. Problems to be discussed include those relating to training and personnel, exchange of material, indexing and abstracting. The annual dinner will be held at the Warwick Hotel on Saturday, 7 p.m. Dr. O. H. Perry Pepper, University of Pennsylvania, will speak on "Verbum Sap. Sat."

International Congress of Climatology and Thalassology. --American physicians are invited to attend the International Congress of Climatology and Thalassology at Riccione (Forli, Italy) June 12-13. Modern climatology in relation to the organization of Institutes for Thalassotherapy and Heliotherapy will be discussed. A preliminary program lists the following guest speakers: Drs. Alvar Gjertz, director, Institute for Physical Therapy of Karolinska Sjukhuset, Stockholm, Sweden; Jose de San Roman y Rouyer, director, Institute for Physical Therapy and Medical Hydrology, University of Madrid, Spain; F. Scheminsky, director, Institute for Scientific Research of Gastein, Innsbruck, Austria; Karl M. Walthard, director, Institute for Physical Therapy, University of Geneva, Switzerland. Information may be obtained from the secretary, Dr. Gino Moro, Direttore dell' Ospedale Civile, Riccione (Forli, Italy).

American Physical Therapy Association.--This Association will hold its annual convention May 23-28 at the La Salle Hotel, Chicago, Among the speakers will be Dr. Louis B. Newman and Miss Viola Bryson of the Veterans Administration Hospital, Hines, Ill., who will demonstrate the management of patients with injuries of the spinal cord. Dr. Sumner L. Koch, Chicago, will discuss nerve and tendon injuries of the hand; Dr. Harry D. Bouman, Madison, Wis., will speak Tuesday on physiology applied to muscle reeducation. Wednesday will be devoted to poliomyelitis. Speakers will be:

Robert L. Bennett Jr., Warm Springs, Ga., Functional Testing and Functional Training in the Care of Convalescent Poliomyelitis Patients.
Emil D.W. Hauser, Chicago, Care of Poliomyelitis from a Functional Point of View.
Geza DeTakats, Chicago, Clinical Aspects and Treatment of Peripheral Vascular Disease Including Physical Therapy.
David I. Abramson, Chicago, Physiology of Peripheral Circulation Including Pharmacology.

Eastern Electroencephalographers.--The annual meeting of the Eastern Electroencephalographers will be held May 15 at the U.S. Naval Hospital, Bethesda, Md. Clifford A. Swanson Surgeon general, U. S. Navy, Washington, D. C., will give the address of welcome. The program includes:

Frederick S. Brackett, Ph. D., Bethesda, Md., Electrochemical Phenomena at Surfaces.
Rafael Lorente de No, New York, Fields of Action Currents of Traveling Nerve Impulses.
Detlev W. Bronk, Ph. D., Philadelphia, Origin of Rhythmic Potentials in the Nervous System.
Harold E. Himwich, U.S. Army, Convulsant Patterns Produced by Electroencephalographic Diisopropyl Fluorophosphate.

At the Subscription Dinner in the Wardman Park Hotel, Washington, D. C., Lawrence C. Kolb director of research projects, Mental Hygiene Division, U. S. Public Health Service, will be the speaker.

Gordon Research Conferences.--Neil E. Gordon, Ph.D., professor of chemistry, Wayne University, Detroit, was honored at a dinner April 20 in Chicago, at ceremonies to rename the Gibson Island Research Conferences, which he originated, the Gordon Research Conferences. Begun in 1938, under the sponsorship of the American Association for the Advancement of Science, the annual summer-long conferences have brought together experts for the pooling of research data and the stimulation of suggestions aimed at the advancement of chemistry frontiers. Gifts from fifty-three industrial companies and from private research laboratories have aided the work. This year the conferences will be held from June 21 to September 3 at Colby Junior College, New London. Subjects of the program include vitamins and nutrition, foods and nutrition, medicinal chemistry and cancer. Additional information may be obtained from W. George Parks, Director, Department of Chemistry, Rhode Island State College, Kingston, R. I.

International Congress on BCG Vaccine.—The first International Congress on BCG Vaccine will be held in Paris, France, June 18-23 under the auspices of the president of the French Republic and members of the government of France, with Dr. C. Guerin, president, and Dr. L. Negre and Dr. J. Bretey, secretaries general. The subjects to be discussed are: experimental study of BCG vaccine and its modes of administration; results of its use in human patients; results obtained in veterinary practice and procedure with regard to its application within the frame of social action and prophylactic hygiene. The registration fee is 1,000 francs for the active members and 500 francs for the associated members. Information may be obtained from the secretary general of the Congress on BCG Vaccine, Institut Pasteur, 25, Rue du Doceur Roux, Paris, 15e.

CANADA

Annual Meeting of Canadian Medical Association.—The seventy-ninth annual meeting of the Canadian Medical Association will be held in the Royal York Hotel, Toronto, Ontario, June 21-25, under the presidency of Dr. Frederick G. McGuinness, Winnipeg, Manitoba. Round-table conferences have been arranged for Wednesday, Thursday and Friday from 9 to 10:30 a.m., to be followed by general sessions. Guest speakers include: Frank B. Walsh, Baltimore, myasthenia gravis; Phillip S. Hench, Rochester, Minn., subject to be announced; Bryan G. Maegraith, Liverpool, England, physiologic approach to medical problems; Sir William Fletcher Shaw, Manchester, England, the scientific outlook, and Clarence O. Sappington, Chicago, modern methods of health protection in industry. The Lister Lecture will be given by Dr. William E. Gallie, Toronto, on "The Practice of Surgery in Canada."

LATIN AMERICA

Summer Course on Tropical Medicine.—From July 5 to August 5 a special course on tropical medicine will be given in Lima, Peru, with the cooperation of members of official and university institutions. The course will chiefly include subjects related to verruga peruana (Carrion's disease) and the physiologic and pathologic aspects of life at high altitudes. Lectures will be supplemented by laboratory work and trips to areas where personal experience in the aforementioned subjects may be obtained. The National Tourist Corporation of Peru is in charge of the travel arrangements. Information may be obtained from the Institute of International Education, 2 West 45th Street, New York 19.

Marriages

LEONARD B. ROSE, Bladensburg, Md., to Dr. Beatrice J. Kartus of Washington, D.C., January 11

CONSUELO IVES to Mr. Frank Bruce Ashley Jr., both of New York, January 31.

WILLIAM REYNOLDS NESBITT, Richmond, Calif., to Miss Bernice Bedwell at Berkeley, February 20.

JOHN HENRY DOHERTY, Scranton, Pa., to Miss Florence Eileen Duffy of New York, January 31.

Deaths

Gerald Bertram Webb ⊕ Colorado Springs, Colo.; born in Cheltanham, England, Sept. 24, 1871; Denver College of Medicine, 1896; member of the House of Delegates of the American Medical Association, 1920-1921; fellow and formerly vice president of the American College of Physicians; member and past president of the Colorado State Medical Society, National Tuberculosis Association, American Association of the History of Medicine, American Clinical and Climatological Association and the Association of American Physicians; member of the American Association for Thoracic Surgery; specialist certified by the American Board of Internal Medicine; past president of the Colorado Board of Medical Examiners; had been delegate to several international congresses on tuberculosis; during World War I senior tuberculosis consultant with the American Expeditionary Forces; associated with the Glockner Sanatorium and Hospital and the Union Printers Home and Tuberculosis Sanatorium; president and research director of the Colorado Foundation for Research in Tuberculosis; in 1939 awarded the Trudeau Medal of the National Tuberculosis Association; received the doctor of science degree from Colorado College in 1936 and from the University of Colorado in 1939; author of "Tuberculosis", and "Rene Theophile Hyacinthe Laennec; a memoir"; joint author of "Henry Sewall, Physiologist and Physician," "Overcoming Tuberculosis"; died January 27, aged 76, of coronary thrombosis.

Charles Henry Henninger ⊕ Pittsburgh; born in Butler County, Pa., Sept. 16, 1874; Western Pennsylvania Medical College, Pittsburgh, 1900; professor of psychiatry at his alma mater; specialist certified by the American Board of Psychiatry and Neurology, Inc.; member of the House of Delegates of the American Medical Association from 1941 to 1944; served as president of the Medical Society of the State of Pennsylvania, Allegheny County Medical Society, Pittsburgh Academy of Medicine, Pennsylvania Hygiene Committee, Public Charities Association, Pittsburgh Neuropsychiatric Society and Pennsylvania Psychiatric Society; member of the Association for Research in Nervous and Mental Diseases and the Pittsburgh Biological Society; a major in the medical corps of the U.S. Army during World War I; served as clinical director and assistant superintendent of the State Institution for the Feeble-minded and Epileptics, Polk, Pa., from 1901 to 1905; at various times on the staffs of St. Francis, Children's, Elizabeth Steel Magee, Columbia and St. John's hospitals; member of the consulting staffs of the Pittsburgh City Home and Hospitals in Mayview and of the Allegheny County Workhouse; died February 18, aged 73, of coronary occlusion.

James Day Edgar ⊕ Captain, U.S. Army, retired, Whittier, Calif., born in Redfield, S.D., Nov. 16, 1889; University of Minnesota Medical School, Minneapolis, 1915; specialist certified by the American Board of Pathology, Inc.; member of the American Society of Clinical Pathologists; served during World War I; entered the medical corps of the U.S. Army in June 1918;retired July 31, 1922 for disability sustained in line of duty; returned to active duty from August 1924 to August 1939; pathologist at Murphy Memorial Hospital; died January 20, aged 58.

Connie Holt King ⊕ Duxbury, Mass.; born in Headsland, Ala; July 16, 1907; University of Tennessee College of Medicine, Memphis, 1929; formerly a medical officer in the U.S. Navy and an intern at the U.S. Naval Hospital in Norfolk, Va.; served a residency at the Norfolk County Hospital in Braintree; associate medical examiner for Plymouth County; school physician; formerly a medical officer of the U.S. Public Health Service; on the staff of the Jordan Hospital in Plymouth; died January 22, aged 40, of coronary thrombosis.

William Gee Allen ⊕ Erie, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1918; fellow of the American College of Surgeons; chief of the surgical staff of Hamot Hospital; died January 23, aged 59.

William Benjamin Allums, Shreveport, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1909; member of the American Medical Association; fellow of the American College of Surgeons; died January 30, aged 65.

Franklin F. Arndt, Scranton, Pa.; University of the City of New York Medical Department, New York, 1883; member of the American Medical Association; served on the staffs of the Hahnemann Hospital, Pittston (Pa.) Hospital, Wilkes Barre (Pa.) General Hospital and the Nesbitt Memorial Hospital in Kingston; died January 11, aged 88, of carcinoma.

Elliott L. Baker Sr., Columbus, Ga.; Atlanta Medical College, 1895; served during World War I; died January 10, aged 72.

Walter A. Bayley ⊕ Los Angeles; University of Southern California College of Medicine, Los Angeles, 1905; associate clinical professor of surgery at his alma mater; fellow of the American College of Surgeons; specialist certified by the American Board of Surgery; served during World War I; affiliated with Presbyterian Hospital-Olmsted Memorial and California, Methodist, Cedars of Lebanon and Mount Sinai hospitals; died in the Veterans Administration Hospital in West Los Angeles January 4, aged 67.

Edgar Rolland Beidelman ⊕ Bethlehem, Pa.; Jefferson Medical College of Philadelphia, 1915; for many years affiliated with St. Luke's Hospital, where he died January 26, aged 63, of cerebral hemorrhage.

Frank M. Bleakney, Grove City, Pa.; Jefferson Medical College of Philadelphia, 1900; died recently, aged 71, of cardiorenal vascular disease.

Delphia Louk Brower, Rialto, Calif.; University of Kansas School of Medicine, Kansas City, 1944; interned at the Orange County General Hospital in Orange; affiliated with the St. Bernardine's Hospital, San Bernardino, where he died December 29, 1947, aged 30, of leukemia.

William Sydney Burgess, Sumter, S. C.; Medical College of the State of Carolina, Charleston, 1912; member of the American Medical Association; attached to the British Army and served as captain in the U. S. Army during World War I; for many years affiliated with the Tuomey Hospital, where he died January 31, aged 57.

Andrew Carr, Minot, N.D.; Rush Medical College, Chicago, 1888; member of the American Medical Association; past president of the North Dakota State Medical Association; affiliated with Trinity and St. Joseph's hospitals; died January 22, aged 93, of senility.

William Henry Chambers, McKeesport, Pa.; Ohio Medical University, Columbus, 1898; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899; for many years a member of the board of health; died January 21, aged 74, of carcinoma.

Frederick George Clark, Los Angeles, Jefferson Medical college of Philadelphia, 1908; died January 9, aged 71.

Foreign Letters

PARIS

(From Our Own Correspondent)

March 1, 1948.

Typhoid

H. Vincent has recently demonstrated the effect produced by the injections of two separate toxins in animals. Guinea pigs receiving neurotoxin manifest characteristic prostration as the predominant factor before death; those receiving enterotoxin show congestion of the small intestine as well as of the adrenal capsule and Peyer's patches at necropsy. These last ulcerated during a slow death (two to three days). Horses are extremely responsive to subcutaneous or intravenous injection of the two toxins. Early restlessness followed by prostration for two to twelve hours, diarrhea, acceleration of the pulse rate and respiratory rate and fever occur. In this way the author establishes the essentially toxemic character of typhoid. Remarkable successes occur in patients treated with a purely antitoxic serum.

R. Dana reported 105 cases of serious typhoid treated orally with 3 to 4 Gm. of sulfonamide drugs if the urine showed colon or paracolon bacilli or other organisms. If there was leukocytosis with polynucleosis he gave sulfonamide drugs by injection (2 to 3 Gm. a day). Penicillin is added (200,000 to 1,000,000 units) if sulfonamide drugs fail. Transfusions of citrated blood are given at frequent intervals in serious cases. Contraindications to the use of sulfonamide drugs are nephrotyphus with hematuria and severe azotemia and the appearance of cyanosis. The recovery rate is high. The former death rate for Tunisia (20 to 30 per cent) is reduced to 3 per cent at the Liberation Hospital.

Bacteriophage and Penicillin

The French Society of Bacteriology has commemorated the thirtieth anniversary of the discovery of bacteriophage by Professor d'Herelle, who emphasized the importance of bacteriophages in the treatment of war wounds. A. Raiga, formerly chief of surgical clinics of the Paris Faculty, explained the biologic causes responsible for certain failures in penicillin therapy. Infection is a problem with two factors, bacteria and terrain; there is also natural recovery: bacteriophagia. The terrain may be rendered unfavorable to bacteriophage production by antiphagic properties of the blood which oppose natural cure. Inhibitory properties were illustrated in photographs of bacteriologic preparations by N. Boulgakov. According to the author, penicillin therapy can only be successful when favored by the phenomenon of natural recovery. In 65 of 67 failures with penicillin the presence of antiphagic properties was demonstrated. Moreover, success with penicillin coincides with the absence of antiphages.

International Union Against Cancer

The board of Directors of the International Union Against Cancer will meet in Paris Dec. 10-11, 1948, for the first time since the war. Elections will be held, and place and program of the Fifth International Congress for Cancer will be considered. Modification of statutes of the International Union Against Cancer and their adaption to decisions of the fourth congress toward establishing a Research Committee with financial autonomy will also be considered.

The quarterly review "Acta," published by the International Union Against Cancer, has resumed publication after seven years' interruption. For information apply to the headquarters of the organization, 6 Avenue Marceau, Paris, 8.

First International BCG Congress

At a meeting of the National Academy of Medicine, Guerin and Weill-Halle, back from the United States, related the interest in BCG vaccination at the New York International Congress of Pediatrics. They believe that the time has come to compare, on an international scale, the various technics and to discuss their respective effectiveness. The academy fully endorsed their resolution to convene an International BCG Congress. It has been organized by the Pasteur Institute and will take place in Paris June 18 to 23, 1948, under the honorary presidency of Professor Trefouel, director of the Pasteur Institute, and under the presidency of Dr. Guerin. The following subjects are on the agenda: (1) experimental study of BCG vaccine and methods of administration; (2) results of its use in human beings; (3) results obtained in veterinary practice, and (4) methods of application in the fields of social action and preventive hygiene. This congress will also commemorate the beginning of the use of BCG in man and will celebrate the fiftieth anniversary of the Lille Pasteur Institute, which was founded by Calmette and in the laboratory of which he and Guerin have carried on most of their experiments on BCG vaccine. For information apply to: Secrétariat Général du BCG, Institute Pasteur, 25 Rue du Docteur Roux, Paris, 15.

Congresses

An International Hematology Meeting, organized by the French Society for Hematology, Professor P. Chevallier presiding, will take place in Paris May 22-23, 1948 at Hotel Dieu hospital.

An International Meeting of Medical Students (under Laennec organization) at the International Cultural Center of Royaumont (Seine and Oise) will be held July 20-30, 1948. Experimentation on the human being, artificial insemination, birth control, social security and modern eugenics will be considered. For information apply to Secretary's office, 12 Rue D'Assas, Paris, 6.

ITALY

(From Our Regular Correspondent)

Naples, March 16, 1948.

Epidemic of Homologous Serum Hepatitis

One of the gravest epidemics of homologous serum hepatitis ever known recently occurred in Italy in Varese, a small town near Milan. The responsibility for the epidemic is said to lie on a self-practicing doctor of the town, who is now in custody pending investigation. Having practiced there for years, this doctor has attended some 17,000 persons (about 32 per cent of the entire population) and has done an average of fifty intravenous injections per day. Patients inoculated with his own drugs commenced to show, a few days afterward, general debility, vomiting and then, either with or without fever, symptoms of jaundice. First deaths from the disease came toward the end of 1946, and the number soon amounted to 12. At least 100 other patients showed symptoms of the illness. All had been treated by this doctor, except 1 child. The mother of the child, however, was treated with fatal results.

At first this doctor was not suspected of aiding the spread of the infection, in view of his fine professional record. Then suspicion began to fall on the drugs used in treatment, drugs provided by the doctor himself. It appears that, owing to a shortage, he had used drugs taken over from the German troops previous to their expulsion from Italy. Since the Germans had poisoned the water supplies before leaving, it was feared that the drugs were also contaminated. Laboratory examination, however, showed them to be free from adulteration. Meanwhile, growing apprehension indicated that there must be a connection between his treatment and the increased occurrence of infection. He then began to send patients to Milan for treatment as soon as the illness was diagnosed. In the course of a week the hospitals of Milan had dozens of cases of jaundice, all of which could be traced back to Varese. After what was considered a grave transgression of procedure on the part of the doctor, as reported by the director of the Varese Hospital, the doctor was arrested and charged with having transposed the names on tubes containing blood samples of 2 patients, 1 from his own ward, and 1 from another ward not under his supervision. The samples of blood from his patient was to have been tested for the presence of germs which could only have been introduced by one of his previous injections.

It was thought that the doctor was at fault in his technic used in sterilization of the instruments. He did not always subject needles and syringe to boiling for as long as twenty minutes. Often, owing to the large number of patients treated, he boiled the instruments for only four minutes. He used disinfecting solutions of Swiss manufacture, but he had never suspected them. The epidemic remained mysterious and the inhabitants of Varese were terrified by this menace in their midst. A Swiss citizen then wrote to the Italian press describing a similar epidemic which had broken out a few months before at Dasilia. The *Neue Zürcher Zeitung* had described this epidemic and referred to the high death rate. It was then supposed that the first source of infection in Italy was a Swiss citizen who had probably been treated by the doctor of Varese. But while the doctor was under arrest, other cases of the "yellow disease" occurred in a town near Lake Maggiore, where the unfortunate doctor had never been. Justice, however, seemed to ignore this fact and the doctor is still being held pending court proceedings.

COPENHAGEN

(From Our Regular Correspondent)

April 9, 1948.

A New Domus Medica at Last

On March 29, 1947 an account was given in these columns of plans for rebuilding Domus Medica, the headquarters in Copenhagen of the Danish Medical Association and the Danish Medical Society. This building, burned during the German occupation of Denmark, had stood as the symbol of all that is best in Danish medicine. Hence the determination to rebuild it as soon as possible, whatever the difficulties. Three million Danish kroner were mentioned as a likely estimate. Even if this sum were forthcoming, how many years would be needed in which to convert it into bricks and mortar?

Matters were at this none too cheerful stage when, on January 23 of this year, Dr. V. A. Fenger, the enterprising secretary of the Danish Medical Association, happened to read in the daily press an advertisement of a palatial building in Copenhagen for sale. The owner was promptly approached and negotiations were started. Representatives of the Medical Association and the Medical Society inspected the building and were greatly impressed by it. The Central Committee of the Medical Association met on January 31, and on February 8 an emergency meeting of the representatives of the association was held. At this meeting the pros and cons were discussed, and the pessimists were given an opportunity to join issue with the optimists. A two-thirds majority was required for this prospective purchase, and it was obtained by the optimists by a narrow margin, 52 to 26. The purchase price is 1,500,000 Danish kroner, and the Medical Association will take possession on June 1, 1948. The necessary alterations will, of course, be costly, but by renting the space it does not need to other bodies, the medical association will be able to obtain some immediate return on its outlay. This new Domus Medica will, of course, be of greater use to the physicians of Copenhagen than to those in the provinces; and in order to repair this inequality to some extent, it is proposed that students from doctors' homes in the country shall be lodged in this building, which will thus acquire the character of a residential college.

Contraceptive Education

Broadly speaking, Danish physicians belong to two main groups in the matter of contraceptives. The older doctors learned nothing about them when young, and many have held aloof from them ever since. For the younger physicians contraception was a subject on which, as medical students, they had to satisfy their examiners. Both groups look to the Danish Medical Association for guidance on the principles governing this problem, and now the Central Committee of the association has issued a memorandum couched in no uncertain terms. Physicians are urged not only to master this subject but also, in individual cases, to act on their own initiative when considerations of health; heredity or particularly difficult social circumstances contraindicate future pregnancies. The Hygiene Committee of the Danish Medical Association has for several years been studying contraception by certain chemicals in hope that they may replace the pessary, whose manipulation requires a dexterity which is sometimes lacking. This committee is hopeful over the prospect of finding a chemical whose application can be varied so as to meet all the requirements of patients with different mental, social and esthetic standards.

Abortions Induced for Psychiatric Reasons

Among 600 presumably pregnant women admitted to the Psychiatric Department of the Bispebjaer Hospital in the seven year period July 1938 to July 1945 were 547 candidates for induced abortion. Dr. C. Clemmesen and Dr. Gertrud Kirkegaard have classified these patients as follows: 10 proved not to be pregnant, 12 aborted spontaneously in the hospital and 400 were refused abortion. Thus abortion was induced in only 125 cases. A comparison of the ages of the women granted or refused abortion showed a fall of the refusal rate as the age rose. There was little difference between the married and the unmarried in this respect, but the refusal rate was comparatively high among widows and wives separated or divorced from their husbands. The refusal rate was lower when the prospective father was a casual acquaintenance than when he was the husband or lover. The main indication for the induction of abortion was ill health in 42 per cent and the risk of suicide in 16 per cent.

Correspondence

MORE ABOUT VAGOTOMY

To the Editor:—The editorial entitled "More About Vagotomy" on page 255 of the January 24 issue of THE JOURNAL states, "There is also a definite effect on the secretion, in most instances shown by histamine achlorhydria." The writer undoubtedly meant to say "insulin achlorhydria." All the evidence clearly shows that the hydrochloric acid secretion produced by histamine stimulation is not abolished by vagotomy. The insulin test of gastric secretion is generally recognized as a reliable means of determining whether the vagotomy has been complete, so that it is quite probable that the writer had this test in mind when he wrote the statement quoted.

MORRIS KESILMAN, M.D., Philadelphia.

COMMENT.—The statement that "there is also a definite effect on the secretion, in most instances shown by histamine achlorhydria" was unfortunately an error. There appears to be no abolition of secretion after a perfect vagotomy. What is abolished is the cephalic phase of the secretion. Vagotomized *stomachs*, according to Dragstedt, will react with secretion not only to histamine and to insulin but also to a protein meal. The claim that Dragstedt makes with regard to this particular point is that the cephalic phase of the secretion is abolished. The sentence quoted by Dr. Kesilman would be wrong even if "insulin" were *substituted for* "histamine".—Ed.

To the Editor:—I cannot agree with your comment in its entirety, specifically where you state that Dragstedt claims that the vagotomized stomach will secrete *in* response to insulin stimulation. In the November 1947 issue of *Annals of Surgery,* page 687, he makes the following *statement:*

> In these 160 patients, the vagus section was complete in 142 cases as evidenced by a reduction in the night secretion of gastric juice, a decrease of over 60 per cent in the total hydrochloric output from the stomach, and a negative secretory response to insulin hypoglycemia.

On page 688 he summarizes the case histories of 2 patients who had recurrences *after* vagotomy and in whom the insulin test was positive, indicating that the vagotomy had been incomplete. These patients were reoperated on and in each the remaining vagus fiber was found and sectioned, after which the test became negative. A protein meal invokes the local humoral mechanism through the mediation of the hormone called gastrin, which is believed by some to be identical with histamine and is not affected by vagus nerve function.

The statement that vagotomy abolishes the cephalic phase of gastric secretion is correct, but I do not like to use this term because of its association with the description of the so-called psychic, or appetite, secretion which occurs prior to the ingestion of food. This tends to narrow the influence of vagus activity in the mind of the reader and neglects to emphasize the important interdigestive and the nocturnal gastric secretion which are also under vagus control. Dragstedt usually describes vagotomy as abolishing the nervous phase of gastric secretion.

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Philadelphia.

LEGISLATION ON AIR POLLUTION

To the Editor:—My interest in the control of urban air pollution led me to seek further information on the Niagara Falls, N. Y., ordinance which was given such enthusiastic mention in the Medical News columns (THE JOURNAL, January 31. p. 339). *Direct query to the director of air pollution control at Niagara Falls elicited the information that the Industrial Hygiene Division of the U. S.* Public Health Service had no part in formulating the ordinance, contrary to the statement in THE JOURNAL. Furthermore, careful *perusal of* the ordinance as it *now stands fails to reveal anything* unique in its provisions—it is patterned after the American Institute of Engineers' standard proposal, which still relies for enforcement *on the constant policing of* all the city's old flues and locomotive smokestacks for illegal *smoke emission.*

Control of smoke production by the policing of the multitude of city flues has been demonstrated to be ineffective and is being abandoned in favor of regulations which make *harmful* smoke production *impossible. Such regulations prohibit the sale of* highly volatile coal *for use in hand-fired furnaces* and *enforce a change of Diesel or electric power* for railroad switching purposes within metropolitan limits as the two most important points in smoke control.

Policing of smoke production *from* individual stacks and flues breaks down completely for the greater part of each winter season when the smoke problem is most acute, *for the simple reason that smoke* readings can be made and infractions cited only during daylight hours and absence of mists or fogs. Even on clear days of cold winter weather, the white steam emitted by *locomotives* can effectively mask dense smoke.

In view of the exceedingly *significant* relationship of air pollution to respiratory *disease* death rates in industrial cities, it is important that those interested in personal and public health insist on really effective legislation whenever the *matter is under consideration in their home* community.

CLARENCE A. MILLS, M.D., Cincinnati 29.

NOMENCLATURE OF FRACTURES

To The Editor.—*I have just received from Dr. H. Earle Conwell of Birmingham, Ala., a reprint of his note to* THE JOURNAL *with regard to nomenclature of* fractures. Dr. Conwell recommends the *term* "complex simple fracture" for "complicated simple fracture" and quotes Webster's definition of *complex. However,* he quotes only the definition *of the noun, which* does not apply. To make sense he should have quoted the definition of the adjective, viz., "involving many parts; *complicated;* intricate." Not to complex (Webster's transitive verb) the issue, the real confusion stems from the original terms, simple and compound, neither of which *means* anything as applied to fractures.

As one not learned in etymology or other branches of philology, including semasiology, but acknowledging *the need of descriptive* values in nomenclature, I suggest dropping the designations "simple" and "*compound*" in favor of "closed" and "open." Qualifying adjectives such as complicated, crush*ing or comminuted* should be used together *with* morphologic descriptive terms as to location of the *fracture in* the bone and its direction.

Certainly a fracture of the tibia and fibula with the skin *unbroken but* everything else in the leg *completely smashed* can hardly be called a simple fracture, no matter what descriptive adjectives may be applied fore or aft.

RICHARD B. DILLEHUNT, M.D., *Portland, Ore.*

Miscellany

SITUATION IN PSYCHIATRY

Dr. William C. Menninger in the January *Bulletin of the Menninger Clinic* has compactly compiled "Facts and Statistics of Significance for Psychiatry."

1. *Military Service.*—Among 15 million men examined for U. S. military service in World War II, 1,846,000 were immediately rejected, 250,000 were discharged administratively and 382,000 were discharged medically, a 2,480,000 man power loss due to neuropsychiatric disorders. Among all medical discharges, 37 per cent in the army and 32.4 per cent in the navy were due to neuropsychiatric disorders. Administrative discharges both in the army and the navy included cases of psychopathic personality, mental deficiency, drug addiction and homosexuality. Combat produced two types of casualties, both arising from conditions over which the men themselves had little or no control; the one received an honorable discharge due to physical injury or illness and the other on discharge was stigmatized as neuropsychiatric.

2. *Mental Hospitals.*—There were 100,000 new admissions to state mental hospitals in 1943 and 271,209 admissions in 1946. In 1946, of a total United States hospital bed capacity of 1,468,714, 674,939 were in mental hospitals, or 46 per cent of total bed capacity. American Hospital Association figures for the year ending September 1946 state that 51 per cent of all hospital beds were for mental patients.

3. *Minor Mental Disorders.*—In military service 3 to 7 per cent of all trainees were seen at mental hygiene clinics; of these, only 7 per cent needed hospitalization. Spot surveys in civilian life indicate that 30 per cent of hospitalized medical and surgical patients are somewhat neurotic, 58 per cent of an unselected group of patients displayed harmful mental reactions and in 26 per cent of the group emotional reactions were the chief cause of illness. Forty-eight per cent of patients consulting gastroenterologists have no organic gastrointestinal disease.

A wide variation occurs in estimates of incidence of functional disorders among all patients consulting physicians. Estimates vary from 35 to 70 per cent, averaging about 50 per cent.

4. *Costs.*—Standards approved by the American Psychiatric Association are $5 per day for acutely ill and recovering patients and $2.50 per day for those with chronic states. Actual costs for general hospital patients average $7 to $11 per day. Present expenditures for mental patients are $1.05 per day or approximately $165,000,000 per year; an average of at least $5 per patient day, which is about $700,000,000 per year, is needed. Dr. Menninger compares this needed cost to other examples of consumer expenditures, indicating that the needed figure is still $150,000,000 per year less than expenditures now made for funeral services, cemeteries and tombstones.

5. *Personnel.*—Approved standards for state hospitals average one psychiatrist for 30 to 50 regular patients and one psychiatrist for 200 senile and arteriosclerotic patients. Army standards require one psychiatrist to 50 patients. Based on figures for 1945 there is shown to be a deficit of 42 per cent of employees of all categories, 74 per cent of physicians, 92 per cent of psychologist, 80 per cent of nurses, 87 per cent of dietitians and 71 per cent of social workers.

Four thousand, four hundred and thirty-two psychiatrists are registered in the membership of the American Psychiatric Association. An estimated immediate need for 10,000 to 14,000 additional psychiatrists exists. It was stated that the Veterans Administration alone could easily use to advantage all first class psychiatrists in the country at the present time. Comparable deficiencies of clinical psychologists, psychiatric nurses and psychiatric social workers exist. There are now needed 1,700 additional clinical psychologists, and an estimated 4,500 to 10,000 psychiatric social workers; the Veterans Administration alone will need more than 5,000 additional psychiatric nurses.

6. *Training Opportunities and Needs.*—Average medical school curriculums of 5,000 hours allot only 1 to 5 per cent of the time schedule for training in psychiatry in contrast to the 30 to 50 per cent of all patients seen in medical practice who present problems that are primarily mental. In 1946 there were 758 approved internships and residencies in psychiatry in one hundred and fifty-five hospitals. The Veterans Administration currently has 401 residencies in psychiatry and expects to increase this number to 600 by 1948 and to 1,083 by 1960. Thirty-one universities now offer training in the field of clinical psychology; but there is a shortage of facilities for training. The Veterans Administration is providing additional facilities for training psychiatric social workers. Psychiatric nursing is now included as a postgraduate course in the curriculums of ten universities and several graduate training centers.

7. *Research.*—Psychiatric research was estimated to amount to only $2,000,000 a year, although loss from mental ill health amounts to over a billion dollars yearly. For every dollar spent on psychiatric research $65 are spent on other types of medical research and $2,500 in industrial research. In poliomyelitis research costs average $100 per case and in psychiatry, $1 for each known case of total mental disability.

8. *Social Problems.*—Social problems having important significance for psychiatry are considered. Certain problems represent the result of mental ill health, others are causes of mental ill health and still others are evidence of existing mental health.

(*a*) Comparative Costs: Comparative expenses for constructive purposes and for luxury are stated as follows:

Comparative Costs

Constructive Expenses	
Medical care, 1945	$3,600,000,000
Recreation, 1945	$3,000,000,000
Public school expenditures, 1940	$2,308,000,000
Reading material, 1942	$1,000,000,000

Luxury Expenses	
Beer, wine, liquor, 1946	$7,700,000,000
Tobacco, 1945	$3,000,000,000
Jewelry, 1945	$3,100,000,000
Cosmetics, 1946	$699,600,000

(*b*) Accidents and Alcoholism: Three hundred and fifty thousand disabling accidents occur yearly, of which 22 per cent result wholly from personality causes and 60 per cent from a combination of mechanical and personality causes. There are 600,000 chronic alcoholic addicts in the United States and 2,400,000 excessive drinkers. In 1945, 750,000 persons were defined as having a diagnosable bodily or mental disorder from prolonged excessive drinking. Conservative estimates are that alcoholism costs the American public about $1,000,000,000 yearly.

(c) Crime: *In* 1946, 18,698 prisoners were confined in federal institutions and approximately 118,000 prisoners in state penal institutions. Twenty-five to thirty thousand of these persons were under 21 years of age. Crimes in 1946 broke all records for the last decade, reaching a total of 1,685,203, an increase of 119,633 over 1945. The cost of crime to the American public was estimated to be between 10 and 18 billion dollars a year to operate one hundred and forty-seven federal and state penal institutions.

(d) Delinquency and Education: Two hundred and fifty thousand to 400,000 adolescents pass through juvenile courts each year, and about 29,000 "pupils" are detained in one hundred and forty-two schools for juvenile delinquents.

In 1940, 3.7 per cent of persons aged 25 years or over in the United States had no schooling and 13.5 per cent had fewer than five years of schooling. The army literacy training program provided for 107,075 men. Only one-fourth of those who leave school do so because they are not interested. Over one-half drop out because of the economic difficulties of continuance. Two million children between the ages of 6 and 15 years were not in any kind of school in 1940.

(e) Divorce: In 1915 there were 10.3 marriages per thousand to 1 divorce; in 1935, 10.4 marriages to 1.7 divorces, and in 1945, 12.3 marriages to 3.6 divorces. In numbers, 249,000 divorces were granted in 1937 and 502,000 in 1945.

(f) Illegitimacy: Eighty-three thousand births out of wedlock occurred in 1943 in the United States, exclusive of those in ten large states which do not record legitimacy on birth registrations. Almost one half of these births were to mothers 15 to 19 years of age.

9. *College Graduates.*—Both men and women fail to reproduce sufficient offspring to replace themselves; it is calculated that 2.22 children must be born per graduate to allow a child to reach the same age at which the parent graduated. Men of classes of 1922 had 1.7 children and those of 1937, 1.11 children per graduate. Women graduates of 1922 had 1.36 children per graduate and of 1937, 1.06 children per graduate.

10. *Housing.*—The national census in 1940 revealed that only 61.7 per cent of 27,723,008 nonfarm homes were standard. (A standard home is one in need of no major repairs and possessing modern plumbing—private flush toilet and bath.) More than 3,500,000 homes did not have a private toilet and bath, and 3,000,000 more lacked running water and plumbing of any description.

11. *Mental Deficiency.*—The estimated extent of mental deficiency in the United States varies from 1,500,000 to 4,500,000. Draft experience showed that 4.5 per cent of all men examined, a total of 676,300, were mentally defective. In 1941 there were approximately 115,000 mentally defective persons in institutions in the United States, 12,315 being first admissions during the year. Approximately 2 per cent of children of school age have enough difficulty to prevent their education in the usual school.

12. *Minority Problems.*—There are 13,454,585 nonwhite persons and 11,419,138 foreign born white persons in the United States. Symptoms of disorder among the majority group are prejudice, ignorance, tension, hate and fear; among the minority group, unhappiness, resentment, fear, poverty and suffering. Expressions of this problem are segregation (Jim Crowism) in housing, travel, recreation, employment, politics, education and medical care. Secret surveys of United States racial and religious intolerance show that large groups, up to 36 per cent, show envy, distrust or plain dislike for Jews, Negroes, Catholics and Protestants in various parts of the country and have suspicions that one or the other groups have too much economic or political power. Other unpublished surveys reveal that 28 per cent, on being questioned as to what should be done about it, favored taking strong measures for changes in the direction of greater tolerance (22,000,000 persons favored active measures to promote greater tolerance).

13. *Physical Handicaps.*—There are 20,000,000 disabled men and women in the United States, or one-seventh of the population. Of these, at least 1,500,000 handicapped persons could be made employable. Based on past figures, every dollar spent for rehabilitation returns $47 to society.

COMMENT

The general assumption that the mentally ill can be separated from society and segregated in hospitals under the care of physicians has changed radically. Unfortunately, however, there are far too few psychiatrists to keep up with the expanding field. Psychiatrists have tended, hampered by this lack, to limit their efforts to clinical work with a few patients rather than to try to solve the ills of the many. Psychiatrists are medical scientists with specialized knowledge which can be applied to social problems. Knowledge of these problems and their solution is now inadequate and needs extension by research and education reenforced by enlistment of additional personnel. The magnitude of the psychiatric problem has been in great part uncovered during the war years. Human unhappiness and maladjustment which were formerly accepted for lack of other solution are now considered by persons so affected as being amenable to psychiatric treatment, thereby creating increased demand for trained personnel and heavily increased expenditures for scientific research before the many associated problems to which Dr. Menninger refers may be successfully combated.

Medical Motion Pictures

NEW MOTION PICTURES ADDED TO A. M. A. FILM LIBRARY

New Frontiers of Medicine. 16 mm., black and white, sound, 600 feet (one reel), showing time seventeen minutes. Produced in 1948 by March of Time Forum Edition, New York. Procurable on loan from the American Medical Association, Committee on Medical Motion Pictures, 535 North Dearborn Street, Chicago 10.

This motion picture acquaints its audience with new medical progress by depicting the discoveries of men who are working to prolong man's life and more healthful living. New drugs such as sulfonamide compounds, penicillin and streptomycin and new fields of study such as Rh blood factor, the artificial kidney, brain surgery and nutrition are mentioned. Progress in the field of heart disease, cancer and rheumatic fever are included in the contents of this film. Scientific aids such as the fluoroscope, the x-ray machine and the electrocardiograph are demonstrated. This production should be suitable for lay audiences, especially for physicians to use in lecturing to service organizations and similar groups.

The motion picture entitled "Accident Service" which was reviewed in THE JOURNAL January 31, page 348, is now available on a loan basis through the Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Practitioner, Philadelphia

2:287-356 (Jan.) 1948

Immediate Treatment of Cerebrovascular Accidents. G. de Takats and N.C. Gilbert.—p. 287.
Observations on 2,233 Blood Cultures and Their Interpretation. E. S. King.—p. 291.
Early Diagnosis of Syphilitic Aortitis. G. C. Griffith.—p. 299.
Roentgenologic Diagnosis of Syphilitic Cardiovascular Disease. M. C. Thorner and R. A. Carter.—p. 301.
Present-Day Concept of Treatment of Cardiovascular Syphilis. R. S. Cosby.—p. 306.
•Sequelae of Acute Hepatitis. M. A. Spellberg.—p. 311.
Psychosomatic Medicine in Daily Practice. B. W. Billow.—p. 321.
Treatment of Acne Rosacea. E. B. Hume.—p. 324.
Management of Warts. M. L. Niedelman.—p. 327.
Leprosy. C. Shaw.—p. 338.
Significance of Diastolic Murmurs. S. Strauss.—p. 341.

Sequelae of Acute Hepatitis.—According to Spellberg, residuals of acute hepatitis may be classified as the chronic form, the recurrent form and the progressive irreversible type. The last is the most important type. Much contradictory opinion occurs regarding this sequela. Biopsies were obtained from 3 men aged 39, 33 and 53, respectively. The first was vaccinated against yellow fever; three months after vaccination an acute illness developed accompanied by pain in the right upper quadrant and fever for five days. He had recurrent attacks of pain in the right upper quadrant. Exploratory laparotomy revealed an enlarged liver. Microscopic examination of a hepatic segment revealed periportal fibrosis and biliary duct proliferation, warranting diagnosis of portal cirrhosis of the liver. In the second patient there developed acute hepatitis three months after his induction into the air forces. There is no definite evidence that the patient received yellow fever vaccine. Exploratory laparotomy performed after three months of medical treatment revealed an enlarged, firm and granular liver. Microscopic examination revealed disturbance of the microscopic architecture and fibrosis, which were considered compatible with a diagnosis of portal cirrhosis. Persistence of jaundice in the third patient two months after gastrectomy and blood transfusions warranted exploratory laparotomy. The liver was enlarged, granular and firm. Jaundice increased postoperatively when adequate draining of bile through a T tube occurred, indicating that extrahepatic obstruction was not responsible for the jaundice. Fibrosis was not evident microscopically; but the periportal inflammatory process was severe and the microscopic picture was classified as cholangitis. In 2 cases the original disease was of the homologous serum type and in 1 case it was probably the epidemic form. Opinion that hepatic cirrhosis may be a sequela of acute hepatitis seems warranted.

American Journal of Public Health, New York

37:1513-1644 (Dec.) 1947

Stems and Roots of Public Health Practice. H. S. Mustard.—p. 1513.

SYMPOSIUM ON HOSPITAL RELATIONS

Hospital as an Instrument in Public Health Program. V. M. Hoge.—p. 1519.
Hospital Planning in New York State. J. J. Bourke.—p. 1525.
Hospital Planning and Licensing Programs in Indiana. L. E. Burney and Martha O'Malley.—p. 1533.
Hospital Services in Saskatchewan. F. D. Mott.—p. 1539.

Comparative Epidemiology of Poliomyelitis in Certain California Cities. W. M. Hammon.—p. 1545.
•Methods of Removing Fluorides from Water. F. J. Maier.—p. 1559.
Problem Drinking—A Public Health and Municipal Responsibility. L. C. Duryea.—p. 1567.
Alcohol Education—Its Needs and Challenges. J. Hirsh.—p. 1574.
Rural Prepayment Medical Care Plans and Public Health Agencies. M. Ziegler, E. R. Weinerman and M. I. Roemer.—p. 1578.

Removing Fluorides from Water.—Maier states that optimal prophylactic effect of fluorides on caries is obtained within the range of 1 to 1.5 parts per million. Greater concentrations are associated with mottled enamel or dental fluorosis. More than five hundred communities in the United States are now using public water supplies containing in excess of 1.5 parts per million of fluorides. The author shows that most removal processes now available appear to be either too expensive to operate or too complicated for routine application. Current knowledge of the chemical processes involved is limited, and additional fundamental research in this field is needed. Further, the practical usefulness of the available methods and those now undeveloped must be tested on a pilot plant scale to determine their relative worth under varying conditions. Until this information is available, endemic fluorosis will continue to be a dental hazard in many communities in this country.

Connecticut State Medical Journal, Hartford

12:1-96 (Jan.) 1948

Conservative Treatment of Thrombo-Embolic Diseases. I. S. Wright.—p. 3.
Clinical Observations on Use of Anti-Thyroid Drugs: Review of Current Literature and Report of 60 Cases Treated at Hartford Hospital. J. T. Beebe.—p. 12.
Newer Aspects of Palliative Treatment of Cancer. N.W Wawro.—p. 17.
Medical Library of New Britain General Hospital. P. D. Rosahn and Mary V. O. Olmsted.—p. 23.
Doctors and Nurses of Other Lands. H.R. O'Brien.—p. 28.

Gastroenterology, Baltimore

9:641-832 (Dec.) 1947

Thymol Turbidity Test as Measure of Liver Disease, with Special Reference to Comparison of Turbidity at 18 Hours with That at 30 Minutes ('18 Hour Turbidity Ratio'). H. Shay, J. E. Berk and H. Siplet.—p. 641.
Thymol Turbidity Test and Impaired Liver Function. F. D. Mann, A. M. Snell and H. R. Butt.—p. 651.
•Studies of Responses of Certain Hepatic Tests in Diseases of Liver and Biliary Tract: I. Serum Cephalin Cholesterol Flocculation, Thymol Turbidity, Thymol Flocculation and Colloidal Gold Responses. J. R. Neefe, E. R. Bahnson and J. G. Reinhold.—p. 656.
•Needle Biopsy of Liver: I. General Considerations. C. W. Kumpe, E. A. Gall, L. Schiff, W. E. Molle and others.—p. 672.
Peritoneoscopic and Biopsy Evaluation of Hepatic Disease. G. McHardy, D. C. Browne and E. Edwards.—p. 682.

Human Plasma Phospholipid Formation: Study Made with Aid of Radiophosphorus. W. M. Balfour. --p. 686.

Treatment of Cirrhosis of Liver with Testosterone Propionate. B. D. Rosenak, R. H. Moser and B. Kilgore Jr.—p. 695.

Use of High Fluid Intake and Low-Sodium Acid-Ash Diet in Management of Portal Cirrhosis with Ascites. J. A. Layne and F. R. Schemm.--p. 705.

Histologic Changes in Livers of Patients with Cirrhosis Treated with Methionine. A. J. Beams and Elizabeth T. Endicott.—p. 718.

Chronic Retention Jaundice in Elderly Patients. J. H. Dible, J. McMichael and Sheila Sherlock. --p. 736.

Tests in Diseases of Liver and Biliary Tract.—Neefe and associates analyzed responses of certain cephalin cholesterol flocculation, thymol turbidity, thymol flocculation and colloidal gold tests in diseases of the liver and biliary tract. The diagnostic value of the individual flocculation test varies with the disease concerned and with the purpose for which the test is used; that is, as an aid in differential diagnosis or as an aid in the detection of hepatic disturbance. For maximum assistance in the study of hepatic and biliary disease, regardless of the purpose for which the tests are used, the routine use of the cephalin cholesterol flocculation, thymol and colloidal gold tests as a group, at least in the initial study of such patients, offers more information than the use of any one or two of these tests. If all three tests cannot be used, the cephalin cholesterol flocculation and thymol reactions are the procedures of choice. None of these tests alone is reliable as a screening test or as a differential diagnostic aid. Further studies of the group response patterns in diseases of the liver and biliary tract are indicated.

Needle Biopsy of Liver.—For three and one-half years needle biopsy of the liver has been carried out at the Cincinnati General Hospital by Kumpe and his associates. One hundred and ninety-five biopsies have been performed on 170 patients. The "Vim"-Silverman needle was used in performing 186 biopsies, and the aspiration technic with the Iversen-Roholm needle in 9. Fourteen biopsies were made using the anterior subcostal approach over an enlarged right lobe and 1 over an enlarged left lobe of the liver. The other 180 biopsies were made by intercostal approach in the anterior or midaxillary line. All biopsies are performed at the bedside. No deaths have occurred in this series which could be attributed directly or indirectly to biopsy. In 11 cases the biopsy material was inadequate for diagnosis. Evaluation of diagnostic accuracy in 19 cases could not be determined because of lack of satisfactory proof of the clinical condition. In 85 cases biopsy diagnosis was in keeping with the clinical and laboratory data. In 41 cases the biopsy diagnosis was verified by necropsy or operation. In 8 cases the biopsy failed to reveal the presence of the hepatic lesion or the complete picture of the hepatic disease subsequently demonstrated at necropsy or operation. In 24 cases the results of biopsy of the liver changed an incorrect clinical diagnosis to a correct one. Since deaths have been reported by other observers following either needle or aspiration biopsy of the liver, caution should be exercised in the selection of cases and in the performance of the biopsy and the patient should be carefully observed following the procedure. The authors believe that final assessment of the safety and value of the procedure must await more widespread experience with it.

Iowa State Medical Society Journal, Des Moines

38:1-40 (Jan.) 1948

Obstetrics Yesterday and Today. R. Luikart.—p. 1.

Nonspecific Granuloma of Colon. L. T. Palumbo.—p. 6.

Thoracoplasty in Pulmonary Tuberculosis. L. J. Galinsky.—p. 9.

Congenital Gastroenteric Cysts of Thorax: Review and Report of Case. J. H. La Tona and F. C. Coleman.—p. 11.

Allergy in Otolaryngology. O. L. Thorburn.—p. 13.

38:41-76 (Feb.) 1948

Diabetes in Pregnancy. R. A. Reis.—p. 41.

Environmental Care for Children with Rheumatic Fever. R. L. Jackson. —p. 45.

Headaches. W. C. Egloff.—p. 49.

Some Problems of Therapy in Psychosomatic Disease. H. H. Crankl —p. 51.

Management of Squint. A. M. Dean.—p. 54.

Journal of Bacteriology, Baltimore

55:1-138 (Jan.) 1948. Partial Index

Bacteriologic Study of Carboxylmethoxylamine Hemihydrochloride. C. B. Favour.--p. 1.

Effects of Salts on Streptomycin and Dihydrostreptomycin in Agar Plate Assays. S. F. Quan. --p. [illegible].

Effect of Aromatic Diamidines on Bacterial Growth. Leah Bichowsky-Slomnitzki.--p. 27.

Note on Detergent Interference in Serial Dilution Assay of Penicillin Using Bacillus Subtilis. R. J. Hickey.--p. 43.

Use of Electron Microscope in Diagnosis of Variola, Vaccinia and Varicella. F. P. O. Nagler and G. Rake.--p. 45.

Physiologic Studies on Spore Germination with Special Reference to Clostridium Botulinum. E. S. Wynne and J. W. Foster.--p. 61.

Enhancement of Penicillin Effectiveness in Vivo by Traces of Cobalt. R. Pratt, J. Dufrenoy and L. A. Strait.--p. 75

Influence of Varied Protein Intake and of Tryptophane Deficiency on Theiler's Encephalomyelitis of Mice. E. B. Kearney, W. L. Pond, B. A. Plass and others.--p. 89.

Apparent Involvement of Vibrio Fetus in Infection of Man. B. Q. Ward.--p. 113.

Studies on Certain Biologic Characteristics of *Malleomyces Mallei* and Malleomyces Pseudomallei. W. R. Miller, Lolita Pannell, L. Cravitz and others.--p. 115.

Electron Microscope in Diagnosis of Variola, Vaccinia and Varicella.--During the recent outbreak of smallpox in New York, Nagler and Rake collected specimens for electron microscopy from clinical cases of variola, generalized vaccinia and varicella. In summarizing their observations they stress that elementary bodies of variola and vaccinia that have been recovered from lesions of smallpox and generalized vaccinia in man can be demonstrated with the electron microscope. The latter resemble elementary bodies of vaccinia obtained from vesicular cutaneous lesions in an infected animal. Virus particles of variola and vaccinia recovered from human and animal tissues resemble each other closely in cell structure. They are also indistinguishable from elementary bodies of these viruses derived from the chorioallantois of the chick embryo. Elementary bodies can be demonstrated with the electron microscope in vesicle fluid or crusts from patients with varicella. They are predominately of rectangular shape and uniform in size but are scantier and smaller than bodies of variola and vaccinia. It is suggested that the electron microscope be used in clinical diagnosis of these diseases. If sufficient numbers of bodies can be measured, the electron micrographs might be used in the differential diagnosis between the first two diseases and the last. Bodies in vesicle fluid were scanty and gave an average measurement of 209 by 254 millimicrons. These facts would have suggested that the case was varicella, and, although there was some doubt in the minds of the clinicians whether the case was generalized vaccinia or varicella (since the rash developed six days after vaccination for smallpox), the weight of clinical opinion was strongly in favor of its being varicella.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:1019-1066 (Dec. 27) 1947

*Acute Poliomyelitis with Special Reference to Early Symptomatology and Contact Histories. D. McAlpine, M. Kremer, P. H. Buxton and D. J. Cowan.—p. 1019.

Poliomyelitis: Pre-Paralytic Stage and Effect of Physical Activity on Severity of Paralysis. W. R. Russell.—p. 1023.

Poliomyelitis and Polio-Encephalitis: Case for Review of Terminology. L. H. Murray.—p. 1028.

*Differential Diagnosis of Jaundice by Flocculation Tests. J. B. Rennie and S. L. Rae.—p. 1030.

Paracolon Bacillus Infection Causing Cholecystitis and Suppurative Hepatitis. K. Walton and J. C. Leedham-Green.—p. 1033.

Poliomyelitis: Symptomatology and Contact Histories.—McAlpine and his associates were able to confirm the diagnosis in 54 of 104 cases of poliomyelitis in patients who had been admitted to their clinic for early treatment. Twenty-four of the 54 patients had the nonparalytic form of poliomyelitis. Prodromal symptoms suggesting a systemic infection were present in 70 per cent of all cases. The symptoms were headache, a shivering feeling, malaise, a generalized muscular aching and fever. To these were sometimes added sore throat or coryza, or a gastrointestinal upset such as nausea, vomiting or diarrhea. The duration of this prodromal stage varied from fourteen days to a few hours. Headache was the main symptom of the meningeal stage of the disease. All degrees of stiffness of the neck were encountered. In a routine examination of the nervous system no abnormality may be detected beyond those mentioned. In other cases certain minor signs may be found which clearly indicate invasion of the central nervous system. The commonest of these signs is nystagmus. There were no deaths. Several case histories are given, including an example of a rare ocular complication (opsoclonia) as well as an unusual case of bulbar paralysis successfully treated by tracheotomy. In nearly one third of the proved cases contact histories suggested the probability of an abortive attack of the disease in other members of the family or in friends of the patient. The authors think that the virus of acute poliomyelitis should now be regarded as the usual cause of a benign type of lymphocytic meningitis and of a brainstem encephalitis accompanied by meningitis.

Flocculation Tests in Jaundice.—Rennie and Rae, to determine the value of two flocculation tests in jaundice, made observations on 110 patients with diseases of the liver, of whom 74 showed jaundice; on 100 controls drawn from donors of blood, and on 281 patients who suffered from a variety of conditions but showed no clinical evidence of hepatic disease. Both tests were carried out on the same sample of serum from each of the 491 subjects. In 100 controls both tests were negative. Of 270 patients without clinical evidence of hepatic disease, the cephalin test was positive in 7.8 per cent and the colloidal gold test in 9.6 per cent. Positive results with both tests were obtained in all conditions except diseases of the central nervous system and nephritis, but such results appeared to be most frequent in patients with acute infections (excluding rheumatoid arthritis). In persistent jaundice due to cirrhosis or subacute necrosis positive reactions were the rule and were helpful in differentiating the condition from obstructive jaundice. The gold test would appear to be the more satisfactory of the two procedures, since it is carried out with standard solutions of known chemical constitution.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

54:577-728 (Oct.) 1947

Fetal and Neonatal Mortality. J. P. Greenhill. -p. 577.

Leukorrhea in Pregnancy. W. G. Liston and Fanny B. Chisholm. -p. 592

Causes and Treatment of Tubal Occlusion. L. Snaith. -p. 607.

Histaminolytic Index of Blood During Pregnancy and its Clinical Application. G. V. Anrep, G. S. Barsoum and A. Ibrahim. -p. 619.

Manchester Operation for Genital Prolapse. W. F. Shaw-p. 632.

Unsuspected Tuberculous Endometritis. J. R. O'Brien and M. K. Lawlor. -p. 636.

Icterus in Pregnancy: Clinico-Pathologic Study Including Liver Biopsy. W. C. W. Nixon, E. S. Egeli, W. Laqueur and O. Yahya. -p. 642.

Gestational Changes in Vaginal Epithelium and their Relation to Sex of Fetus. H. E. Nieburgs. -p. 653.

Bilateral Ovarian Dermoids in Girl of Twelve. E. M. Metcalfe. -p. 657.

Note of Case of Cerebral Hemorrhage Occurring Early in Pregnancy. Sylvia Lerer. -p. 659.

Pelvic Contraction due to Idiopathic Steatorrhea. S. F. Hans. -p. 663.

Treatment of Type of Juxta-Urethral Vesicovaginal Fistula. G. B. Thomas. -p. 665.

Smellie's Method of Forceps Traction. P. Malpas. -p. 667.

Achalasia of External Os (or Conglutination of External Os). J. A. Waterman. -p. 670.

Acta Chirurgica Scandinavica, Stockholm

96: 199-296 (Dec. 5) 1947. Partial Index

Value of Preoperative Heart Examination: Study Based on Material at Surgical Clinic of Karolinska Sjukhuset, Stockholm, 1940-1944. W. Kock. -p. 199.

Septic Appendical Peritonitis and Fluid Balance. T. Hiertonn. -p. 224.

Obstruction of Duodenum with Special Reference to Gallstone Perforations. J. Hertz. -p. 233

*Vagotomy for Peptic Ulcer: Theoretic Background and Clinical Results. H. B. Wulff. -p. 265.

*Surgical Treatment of Polycystic Kidney. B. Köhler.

Vagotomy for Peptic Ulcer.--Wulff discusses the etiology and pathogenesis of peptic ulcers and the possibility of reducing excessive gastric secretion by bilateral vagotomy. Vagotomy, performed in 22 cases, confirmed results obtained by Dragstedt and other American surgeons. Eight to twelve months have elapsed since his patients were vagotomized, and the desired reduction in gastric secretion has been secured. Objective proof that the ulcer had healed has been obtained, and a distinct symptomatic improvement occurred in each case. The author believes vagotomy to be a promising treatment.

Polycystic Kidney.--Statistics cited by Köhler indicate that the incidence of polycystic disease of the kidney varies between 2 in 1,000 cases to 1 in 3,500 cases. The author believes the disease to be a malformation, often associated with other dysontogenetic changes. Contents of the cysts are formed through filtration into a still active glomerulotubular system. Patients are sometimes admitted to surgical departments because of complications of polycystic kidney, such as pain, fever, hematuria or calculi. The concentration capacity of these kidneys is often maintained and the prognosis may be relatively good. Uremia with advanced polycystic disease of the kidney is characterized by little change in the general condition. Hypertension and retinopathy are not necessarily present. Hypochromic anemia may exist. Palpation of the kidneys is the decisive factor in establishing the diagnosis. Views differ with regard to the advisability of surgical treatment in uncomplicated cases of polycystic kidney. Surgical technic consists in exposing one or both kidneys and opening as many cysts as possible. This can be done by puncture, by excision of the cyst walls or by cauterization. Etching the cyst walls with various corrosives is done to prevent the formation of new cysts. A method of suturing the kidney to the scar in order to make the enlarging cyst accessible for further surgical intervention has also been described. These conservative operative technics were introduced about 1910 and are often referred to as Rovsing's operation. They should be performed in perinephritis and infected cysts, in large hemorrhages, in threatening uremia, in rapid deterioration of renal function and in rapidly increasing hypertension. To illustrate the results and the risks of the operation Köhler reports 3 cases from his own material. One case indicates that the immediate result of operation may be good. The other 2 cases, however, show that the development of the disease is influenced only temporarily.

Book Notices

Blood Derivatives and Substitutes: Preparation, Storage, Administration and Clinical Results Including a Discussion of Shock Etiology, Physiology, Pathology and Management. By Charles Stanley White, M.D., Sc.D., Chief of Surgery, Doctors Hospital, Washington, D. C., and Jacob Joseph Weinstein, B.S., M.D., Associate in Surgery, School of Medicine, George Washington University, Washington, D. C. Cloth. Price, $7.50. Pp. 484, with 190 illustrations. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1947.

The use of blood and blood derivatives in medical practice is increasing. The intelligent application of existing knowledge and research into the value of blood substitutes during the war was a great contribution to medical science. Many lives in the armed forces were saved by human plasma and serum albumin. The advances gained by the fractionation of plasma have been documented and presented so that full value can be enjoyed by the civilian population. The authors have brought together in one textbook the pertinent literature necessary for the development and expansion of blood programs throughout the country. It will be interesting and informative for the general practitioner, the surgeon, the internist and the pathologist and will become an outstanding reference and guide for hospital administrators. The chemical and physiologic aspects of blood, plasma and plasma derivatives have been stressed; similarly, their preparation, storage and administration are described in detail. A section is devoted to an important discussion of shock. The text is clarified throughout by numerous charts and photographs.

The Oculorotary Muscles. By Richard G. Scobee, B.A., M.D., Instructor in Ophthalmology, Washington University School of Medicine, St. Louis. Cloth. Price, $8. Pp. 359, with 113 illustrations. The C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1947.

The book, as stated by the authors, is the outgrowth of a series of lectures given to graduate students in the field of ophthalmology. The chapters consist of those usually found in textbooks on ocular musculature with many quotations from well known authorities and copies of illustrations from other texts. Some original illustrations are either enlargements of those found in the writings of others or pictures of methods of patients seen by the author, all of which add little that is new. In the section on surgery of the eye muscles there are no illustrations. The omissions of medical treatment and orthoptic procedures are too numerous to be detailed. In the introduction the author stated: "There will be many who disagree with the ideas to be presented, but the majority who disagree will not have tried them and cannot, therefore, disagree from experience but only from theory." This statement with a perusal of the text is sufficient to show that the author gives little thought to methods which have been in use for twenty-five years or more and also to demonstrate his lack of knowledge of what is transpiring in his chosen field in other parts of the world. References are minute, and a short index is appended. The format is good.

An Atlas of Anatomy. By Regions: Upper Limb, Abdomen, Perineum, Pelvis, Lower Limb, Vertebrae, Vertebral Column, Thorax, Head and Neck. By J. C. Boileau Grant, M.C., M.B., Ch.B., Professor of Anatomy in the University of Toronto, Toronto. Second edition. Cloth. Price $10. Pp. 496, with 591 illustrations. The Williams and Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1947.

The second edition of this already valuable book contains more than two hundred new illustrations, with the addition of color to some of the old illustrations. New features include complete coverage of hernia, the common anomalies found in the dissecting room, illustrations of epiphyses of the limb bones and plates of the cranial nerves. More comparative contrast might have been used in some of the half tone illustrations, but this is not a serious defect. The line drawings seem to lack a sureness of execution, but this is the result of the method used in tracing to insure accuracy. The index is adequate. It is a good atlas.

The Practical Nurse. By Dorothy Deming, R.N. Cloth. Price, $3. Pp. 370. The Commonwealth Fund, 41 E. 57th St., New York 22: Oxford University Press, Amen House, Warwick Square, London, E. C. 4, 1947.

This well written book comes at a time that is most auspicious because of the discussions in speech and writings, much of which are unsound, of the nursing problem. It separates clearly the duties of the practical nurse as distinguished from the professional nurse, ward maids and orderlies. This is important because many persons discussing this subject today are apparently not familiar with the specific duties of any of these categories. The advantages, disadvantages and dangers are treated fairly and without favoritism or prejudice and are treated completely in the abstract. The book deals with the length of time required for training; the subjects to be covered; the uniform; the acceptance by hospital administrators and professional nurses. It describes the practical nurse; the duties; the future supply. The volume outlines the place of the practical nurse in the home, large hospital, small hospital, psychiatric hospital, industrial nursing, federal services and public health nursing. It stresses the importance of supervision by the hospital authorities and professional nurses. The book is well documented. The chapter references are sound and illuminating and cover the situation thoroughly. The construction of the chapters, covering various situations of nursing, is orderly. Altogether it is a splendid book and should find a proper place in the hands and on the bookshelves of all interested in this most important subject.

The Thematic Apperception Test: The Theory and Technique of Interpretation. By Silvan S. Tomkins, Ph.D. With the Collaboration of Elizabeth J. Tomkins, B.A. Fabrikoid. Price, $5. Pp. 297. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1947.

The present volume represents a clear, concise, well written description of the method, aims, technic and conclusions drawn from the thematic apperception test. Although some work in this field was carried out by Francis Galton on himself as early as 1879, nothing of value was published until 1935 by Morgan and Murray. This book represents a further study and elaboration of the work of Morgan and Murray and as such has been extended, amplified and refined. Along with the Rorschach test, the thematic apperception test has proved of definite value in the diagnosis of personality. There is an excellent bibliography and an adequate index. The book is recommended to all those who are interested in personality study, particularly to psychologists and sociologists, who could well use this volume as a textbook for study and teaching.

Sistema neurovegetativo. Por Augusto Pi Suner, director del Instituto de medicina experimental de Caracas, Caracas. Fabrikoid. Pp. 817, with 173 illustrations. Union Tipografica editorial Hispano-Americana, Calzada de la Piedad núm. 238-F, México, D.F., 1947.

This work is one of the best examples of Latin-American typography that has come to view. The illustrations are excellent, the type attractive. The general make-up of the book commends favorable attention. The author, whose father was a famous medical teacher of Barcelona, has made a notable contribution to Spanish medical literature. One is impressed that the book is scientifically up-to-date, authoritative and complete. Like many French and Spanish publications the references, though numerous, are by name and year only, without statement of the source. More than two thousand authors are referred to in the text. Readers of Spanish will find the text clearly and attractively written.

Fisiopatologia della circolazione venosa. Di Luigi Condorelli. Collana di scienze mediche 2. Boards. Price, 1200 lire. Pp. 337, with 83 illustrations. Casa editrice A. P. E. (Azienda poligrafica editoriale) degli Editori U. & G. Pagnano, Corso Italia, 23, Catania, 1947.

This monographic study is on venous circulation which has been the subject of previous publications by the author and his pupils. After describing a new apparatus for continuous recording of the venous pressure in man, the author applies the results of the method to the interpretation of many circulatory conditions. New conceptions are advanced. Some of these conceptions, such as those concerning a venous hypertonus (so-called active venous hypertension) are attractive, but few appear to be substantiated by solid evidence. Bibliographic quotations are mostly limited to French and German papers of the last ten years. The style and the composition of the book are far from being clear.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

TETANUS TOXOID

To the Editor:—In recent years I have inclined to the practice of giving patients with minor injuries an injection of tetanus toxoid instead of giving tetanus antitoxin. Recently I have used fluid toxoid exclusively, hoping to speed up the early development of immunity. Is there a record of cases of tetanus having occurred after such administration because of immunity not having had time to develop? Is this danger materially greater than the danger of a serious reaction to the horse serum of tetanus antitoxin assuming that the serum is withheld from patients known to be serum sensitive? I refer to the risk incurred from routine use of the 1,500 unit package of tetanus antitoxin. Would administration of penicillin, say daily injections of 300,000 units in oil and wax for the first three to four days, delay the growth of tetanus bacilli sufficiently to enable the body to respond to tetanus toxoid injected immediately after the injury? Eventually I believe the entire population should be given tetanus immunization as part of the infancy series and that thereafter a dose of the toxoid will be an accepted procedure when an injury brings the patient to the physician.

Henry L. Skinner, M.D., Battle Ground, Wash.

Answer.—If a person has been actively immunized with tetanus toxoid, protection from tetanus may be expected to endure for about two years. Thereafter immunity may be maintained by injection of a small dose of tetanus toxoid annually. Under the foregoing circumstances, if an injury occurred and the possibility of tetanus infection was feared, an immediate injection of tetanus toxoid instead of tetanus antitoxin would be indicated. However, if the patient had not been actively immunized, a single injection of tetanus toxoid would not be regarded as a reliable preventive. Therefore it would be proper to inject tetanus antitoxin. There is no reason why tetanus could not occur following a single injection of tetanus toxoid, because there would not be sufficient time for the required amount of antibodies to develop before the disease was well established. It has been reported that a stimulating, or booster, dose of tetanus toxoid will result in greater production of antibodies within a given time than can be supplied by passive immunization with 1,500 units of tetanus antitoxin. If it is known that a patient is sensitive to horse serum and it is considered that tetanus antitoxin should be administered, bovine tetanus antitoxin should be used; in any event, before injecting tetanus antitoxin a sensitivity test should be made.

If daily doses of penicillin are administered immediately after an injury, the growth of tetanus bacilli may be retarded. Consequently, by the administration of tetanus toxoid to a patient, the chances of protection may be improved, for a reservoir of antibodies is being established as a result of the immunizing agent. It is now an established practice with some pediatricians to administer tetanus toxoid either alone or in combination with other immunization agents to all infants or children and to inject a small booster dose of tetanus toxoid every year or two.

VARICOSE ULCERS

To the Editor:—What is the treatment of ulcerations of the leg occurring in patients who have had a bilateral ligation of the common femoral vein for pulmonary embolism? Ulcerations occurred about one year following ligation. Dependent edema is present, without visible varicosities. The ulcers occurred spontaneously, are perfectly round (punched out) and very superficial. They have not responded to the usual method for treatment of "varicose ulcers." One patient has a hyperhidrosis of the affected limb. Is sympathectomy indicated to release spastic influences? The Wassermann test is negative.

M.D., New York.

Answer.—Post-thrombotic indurations followed by ulceration do occur after ligations of the femoral veins, especially if the common femoral vein has been tied. Short periods of rest in bed with elevation of the limb, followed by application of glycerin-gelatin casts, often help but recurrences are frequent. Excision of the ulcer with its collar of induration is the next procedure, the defect being covered with a split thickness skin graft. The edema must be controlled with well fitting elastic hose or rubber bandage. If there is evidence of increased sympathetic activity in the affected limb, as manifested by hyperhidrosis or diminished pulsation and temperature, a lumbar sympathectomy is beneficial. No matter what procedure is used, continuous elastic support is important and may have to be worn for many years.

SPLINTER HEMORRHAGES

To the Editor:—A colleague (aged 35) has noted splinter hemorrhages of all his finger nails almost continuously for seven or eight years without other untoward symptoms. Except for roentgen examination of the chest, red blood cell count, white blood cell count, differential count and sedimentation rate, all within normal limits, he has not had laboratory tests. Familial hemorrhagic history, drug addiction and rheumatic history are absent. Physical examination, which he performed, disclosed two to three nontender lymph nodes 1 cm. in diameter in each epitrochlear region.

What are the possibilities in this case? Have cases of so-called "benign" splinter hemorrhages been reported?

M.D., California.

Answer.—The nature of the hemorrhages in the nail beds is not clear. In the absence of hemorrhages elsewhere in the skin, mucous membrane or toe nails, the possibility of trauma or local irritation rather than a systemic disease must be considered. No known cases of "benign splinter hemorrhages" are reported in the available literature. Additional tests of interest would be the platelet number, degree of capillary fragility, bleeding, clotting and prothrombin times and evidences of sensitivity (allergy).

RECALCITRANT PUSTULAR ERUPTIONS

To the Editor:—A white woman aged 46 has had an eruption on both feet since 1940. The eruption appears in crops of small-sized pinhead papules, which crust almost immediately after forming and in some cases enlarge to form flat pustules about the size of a matchhead. The lesions are mostly present on the plantar surface of the foot extending up on the lateral aspects and cause intense itching. Lesions between the toes are absent. This patient has been to every dermatologist in this vicinity and has received permanganate soaks, ultraviolet and roentgen therapy, phenol and glycerin, ointment of benzoic and salicylic acid and numerous other forms of treatment. She is now using "sopronol" (sodium propionate) powder and ointment and is having her feet painted twice weekly with "fluid salicresin" (a fungicidal preparation containing salicylic acid 2 per cent, benzoic acid 2 per cent, secondary amyltricresols 0.1 per cent, orthohydroxyphenylmercuric chloride 0.1 per cent and isopropyl alcohol 60 per cent, Upjohn). She had a four day course of penicillin and has been using "benadryl" for about three weeks without amelioration of symptoms. Opening the pustules has not prevented new ones from forming. The feet start to clear up temporarily, but then suddenly relapse with renewed pruritus. What is the diagnosis and treatment?

M.D., Kansas.

Answer.—Consideration of the location, the chronicity and the pustular element of the dermatosis indicate that it belongs in the category of what is called recalcitrant pustular eruptions of the hands and feet. The several diseases included in this term are acrodermatitis continua (Hallopeau), pustular psoriasis of the extremities and pustular bacterid described by Andrews. These diseases have common characteristics and have not been definitely established as separate entities.

Features of these diseases are their location on the hands and feet, unilateral or bilateral, a rather sharply marginated patch with some degree of inflammation and closely adherent, dry scales. A predominant feature is pustulation, the pustules are rather deep seated, at first the size of pinheads but later larger. These diseases usually occur in adults; itching may be present. They are further characterized by their chronicity, exacerbations and resistance to treatment.

Acrodermatitis continua, also called acrodermatitis perstans and dermatitis repens, is more likely to appear on the extremity of a digit and coexist with paronychia. Staphylococcus aureus may be recovered from the pustule. Pustular psoriasis and pustular bacterid are more likely to occur on the palms or soles. The pustules as a rule are sterile.

In treatment search for and removal of foci of infection are important. The application of penicillin ointment locally is of value. Response has been reported following administration of sulfadiazine and also sulfapyridine. Measures to improve the patient's general health are indicated. The local use of diluted aluminum acetate (1:20) in the form of a wet dressing or in ointment base and daily painting with 10 per cent solution of potassium permanganate are recommended.

GENTIAN VIOLET IN PREGNANCY

To the Editor:—A woman, aged 27, three months pregnant, was treated with gentian violet for Oxyuris vermicularis. After taking two ½ grain (30 mg.) tablets three times a day for six days a spontaneous abortion occurred. Is there a connection between the medication and the abortion?

Walter Freund, M.D., Oswego, N. Y.

Answer.—Gentian violet medicinal taken internally in large doses has a definitely toxic effect. Amounts about eight times that given to this patient were necessary to kill experimental dogs. The dosage given this patient was well within therapeutic limits.

Whether the gentian violet taken by this patient could have had any effect in producing the abortion must remain entirely speculative. Probably the abortion was entirely coincidental and not the result of the medication.

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MANAGEMENT OF RECURRENT RENAL CALCULI

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This paper presents the management of recurrent renal calculi in patients observed at Walter Reed General Hospital during the one year period April 1, 1946 to April 1, 1947. During this period, 13,977 patients were admitted to Walter Reed General Hospital; of these, 793 were treated in the surgical service of the urology section.

Only the patients treated by operative procedures are included herein. A large number were treated by measures other than operative—spontaneous passage, attempts at dissolution and manipulative procedures. Many of these were treated on the sections of neurology (patients with paraplegia) and orthopedic surgery (amputees). There were more than 1,500 cases of paraplegia resulting from battle casualties of World War II, 90 per cent of which were complicated by neurogenic conditions of the bladder. There were more than 15,000 amputees. The periods of hospitalization and recumbency resulted in a high percentage of complicating and recurrent renal calculi. Accurate statistics concerning the incidence of calculi in these patients are not available at present, but will be in the near future.

The magnitude of the treatment of calculi in these patients can be appreciated when the long periods of recumbency are considered. Many of them have experienced repeated manipulation and operation. The calculi are often bilateral, and the conservation of renal tissue is imperative.

The causation of renal calculi has been adequately presented in recent years by Randall,[1] Keyser,[2] Flocks,[3] Vermooten[4] and others. The incidence has been reported by Higgins,[5] Cabot and Crabtree. Flocks has dealt extensively with methods of prevention. The dissolution and manipulative treatment has been considered by Higgins, Councill,[6] Ferguson,[7] Balkus,[8] Browne[9] and others. Operative procedures have been thoroughly described by Priestley,[10] Bugbee[11] and Yunck and Forsythe.[12] Lowsley and Menning's[13] work on repair of renal lesions is outstanding. Bugbee's description of secondary renal operations has been a guide for the procedures for treatment in the cases herein reported.

The incidence of recurring renal calculi has been reported within a wide range variation. Cabot and Crabtree (cited by Higgins[5]) reported an incidence of 56 per cent recurrence following nephrolithotomy and 51 per cent following *pyelolithotomy*. Fifteen to 30 per cent recurrence is not unusual. Higgins, with his rigid management, reduced the incidence in his series to 4.7 per cent.

Fourteen of the 25 patients included in this report had previous operations for the removal of calculi, an incidence of 56 per cent. This in no measure indicates the general incidence of recurrence in Army hospitals, since it does not consider the patients from whom stones are removed by operation and manipulation or passed spontaneously and who are not followed up after such treatment.

So-called recurrence may be due to incomplete removal of all calculi at operation. This error can be eliminated by roentgenologic examination at operation and adequate postoperative follow-up. It is possible that some of the reported early recurrence was due to incomplete operation.

Because of the large number of patients in Army hospitals who require prolonged treatment as bed patients, recumbency with attendant urinary stasis becomes a major causative factor. Patients with paraplegia and with complicating neurogenic conditions of the bladder are a special problem. These patients have had urethral or suprapubic drainage; even when drainage is no longer necessary, there is usually considerable residual urine. Almost all of them have infection of the urinary tract. The recumbency, stasis and infection cause a high incidence of renal calculi.

Read before the Section on Urology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

Dr. Lloyd G. Lewis, Chief of the Urology Section, Walter Reed General Hospital (1942-1946), and Consultant in Urology to the Secretary of War, contributed materially in the management of the patients. Captain David K. Worgan, Captain Carl Denslow and Lieutenant Frederick T. Reuter, Residents in Urology, Walter Reed General Hospital, assisted in carrying out the treatment. Master Sergeant Ralph W. Green and Sergeant Nadine L. Drake assembled the material, compiled the case records and prepared the slides and photographs.

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Local damage to renal tissue by infection, battle injury or operative procedure provides a fertile field for recurrence and has been an important factor. When persons with moderate obstruction at the ureteropelvic juncture or the infundibulum, who have no symptoms under normal living conditions, become bedridden, sufficient stasis is produced to become a factor in the formation of calculi.

Bacillus proteus has been the predominating bacterium in cases of recurrent disease, and reformation of calculi is almost certain to take place unless this organism is eradicated before or after operation. Urea-splitting staphylococcus is a frequent causative agent. Pseudomonas aeruginosa is often present. It has been difficult to evaluate the effect of this organism. The serum phosphorus and calcium have been normal in all cases.

The recurrent calculi are often of the branched type and conform to the shape of the calyx occupied. The stones are usually multiple and adhere to damaged renal tissue. The chemical composition is fairly uniform and consists predominantly of calcium and ammonium phosphate; magnesium and ammonium (NH_4) groups are usually present.

Preoperative roentgenologic studies, including excretory and retrograde urograms, will demonstrate the number, size and location of calculi and the associated renal pathologic changes. Such information is valuable in planning the operation before surgical exposure. Appropriate tests of renal function and examinations of the blood and the urine are essential in evaluating the general condition of the patient prior to treatment.

The removal of renal calculi is only an aspect in the management of the disease and may be misdirected effort unless there is appropriate postoperative care to prevent recurrence of the calculi and to maintain the general health of the patient.

Calculi in the kidney are foreign bodies, always cause damage and should be removed. Observation with appropriate roentgenologic studies may be carried out in patients without infection and obstruction; however, delay in removal may be disastrous. One cannot predict when infection will cause serious danger or when obstruction will convert the "silent" stone into one of grave emergency. Time should not be lost in awaiting spontaneous passage. Dissolution with various irrigating solutions has proved unsatisfactory. Manipulation with catheters, loops and other devices is often a dangerous procedure. Persistence and procrastination cease to be virtues when one employs nonoperative measures to remove urinary calculi.

During the one year period from April 1, 1946 to April 1, 1947, 25 patients were treated for renal calculus by operation. Twelve of these had one operation and 13 had one or more previous operations for renal calculi. Two had bilateral calculi removed. The calculi were removed from 8 (32 per cent) by pyelolithotomy, from 3 (12 per cent) by nephrolithotomy, from 7 (28 per cent) by nephropyelolithotomy, from 4 (16 per cent) by calyceal resection and from 3 (12 per cent) by nephrectomy.

Pyelolithotomy is the operation of choice, but it is rarely possible as a secondary operation. Nephrolithotomy may be employed in primary or secondary operation when the stone is readily accessible by incision through renal substance. Nephropyelolithotomy is used in cases in which nephrostomy drainage is required, because of infection or hydronephrosis, and is oftenest employed in secondary operation. Calyceal resection is used in cases in which the calculi are held in a calyceal cyst (primary operation) or in cases in which the calculi are retained in a damaged calyx (secondary operation). Nephrectomy (3 cases) was performed when the kidney was damaged beyond hope of salvage and the opposite kidney was in good condition. Measures to induce spontaneous passage, dissolution by dietary measures and irrigation and removal by various methods of manipulation have been futile in these complicated cases.

Operations for Renal Calculi (April 1, 1946 to April 1, 1947)

	Primary Operation	Secondary Operation	Total No.	Percentage
Pyelolithotomy	7	1	8	32
Nephrolithotomy	1	2	3	12
Nephropyelolithotomy	2	5	7	28
Calyceal resection	1	3	4	16
Nephrectomy	0	3	3	12
Total patients	11	14	25	100
Total operations (2 patients had two operations)			27	

Prior to operation, efforts have been made, often unsuccessfully, to eradicate infection. The organisms most frequently observed are B. proteus, staphylococci, Escherichia coli, Aerobacter aerogenes and Ps. aeruginosa. The infection can usually be eradicated with sulfonamide drugs and penicillin. Streptomycin has been employed in selected cases.

In patients who have had one or more operations, the incision usually removes the scar of the previous incision. The twelfth rib is resected when necessary, in order to obtain adequate exposure; subperiosteal resection is preferred. The peritoneum and the renal fascia are exposed. There are usually dense adhesions of the kidney to the adjacent tissue. Subcapsular exposure is carried out by making an incision through the renal fascia (fascia of Gerota) and the renal capsule, and the kidney is delivered through the capsular incision. The capsule at the pedicle is incised with a knife or dissected with scissors, exposing the renal vessels, and the pelvis is isolated. Rubber-covered curved hemostat clamps are placed about the pedicle to assure control of hemorrhage. The necessary nephrotomy incision or calyceal resection is carried out, and the calculi are removed. Calyceal resection is done in cases in which the renal tissue is damaged and cortical stones are present. Injured renal tissue is a fertile field for recurrence and must be removed along with the stones. The renal pelvis is examined, and obstruction of the ureteropelvic juncture is relieved. The pelvis is usually opened and the ureteropelvic juncture examined with a no. 12F bulb.

Nephrostomy drainage and a ureteral splint are usually employed. The nephrostomy incision or calyceal resection is closed with mattress or ribbon gut sutures through the tough fibrous capsule, and the hemorrhage is controlled by incorporating pads of fat or oxidized cellulose gauze. The fibrous capsule is closed about the renal tissue, leaving the kidney in its original position. A cigaret drain to the renal area is inserted, and the incision is closed with no. 1 chromic surgical gut, with figure-of-eight interrupted sutures. The skin is approximated with silk. Roentgenologic examination is carried out at the operation to ascertain the position of remaining calculi and to insure the complete removal of all fragments. Several years' experience with this procedure has emphasized the importance of simple apparatus. Complicated technics with special devices have been unsuccessful. In present practice, an 8 by 10 inch (about 20 by 25 cm.) cassette in a sterile container is placed just behind the renal area and the x-ray unit, covered with sterile drapes, is placed on the abdominal approach. Exposures are repeated until the roentgenograms indicate that all calculi have been removed.

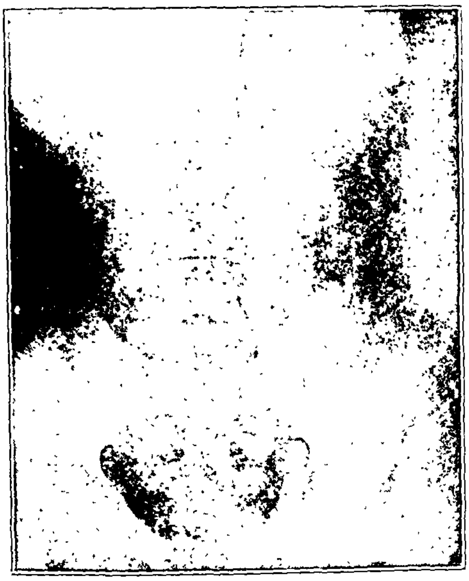

Fig. 1 (case 1).—Urogram made before the injection of the contrast medium, showing the calculus in the region of the left kidney prior to operation.

Immediate postoperative care is important. Irrigation with Suby's solution "*G*," a solution of citric acid, magnesium oxide and sodium carbonate of p_H 4, or "M," a variation of the solution with a p_H of 4.5, is begun on the second or third day. The cigaret perirenal drain is removed on the fifth or sixth day. During the fourth week, cultures are made and a urogram through a nephrostomy tube is carried out. The nephrostomy drain and the urethral splint are removed in the fourth or fifth week, when it is ascertained that the infection is cleared and that drainage is no longer necessary. The patient is usually up and about by the tenth day and able to leave the ward a few days after the drain is removed.

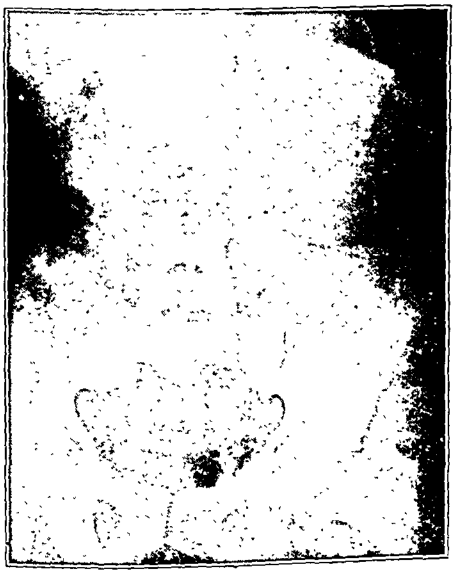

Fig. 2 (case 1).—Excretory urogram made five minutes prior to operation, showing the absence of shadow in the left kidney.

The pleura was opened in 2 patients. With modern anesthesia, this accident causes little apprehension. The pleural rent is closed with mattress sutures to the costal margin, and the pneumothorax is given adequate attention. Convalescence was not complicated by such accidents.

The peritoneum was opened in 3 patients. These accidents not only caused no complications but gave opportunity for more adequate examination and exposure before closure of the peritoneum. The essential points of operation are as follows:

1. Adequate exposure
    - Removal of rib
    - Subcapsular approach
2. Avoid damage to renal tissue
3. Control hemorrhage
    - Pedicle clamps
    - Oxidized cellulose
    - Fat pads
    - Ribbon or mattress sutures
4. Resection of damaged renal tissue (calyceal resection, wedge incision, capsule cover)
5. Relieve ureteropelvic obstruction
6. Avoid injury to adjacent structures
    - Pleura
    - Peritoneum
7. Ascertain that all particles of stone have been removed
    - Roentgenogram at operation
8. Adequate postoperative drainage and irrigation
    - Nephrostomy drains
    - Ureteral splints
    - Solutions "M" and "G"

Postoperative hemorrhage occurred in 1 patient on the ninth day and continued in alarming degree for three days. The hemorrhage ceased spontaneously on the third day, at which time nephrectomy was being seriously considered.

Infection often recurs following the operation. Sulfadiazine, 4 Gm., and penicillin, 600,000 units in oil, are given daily during the postoperative course. Streptomycin is used in selected cases.

The treatment after operation is designed to prevent the recurrence of calculi and to carry out measures to maintain the general health of the patient. The patient who has had treatment for renal calculi presents an optimal case for recurrence in that he has the potential, local and constitutional diathesis for the formation of stone.

When the physician has removed the causes of obstruction and has eradicated infection, it devolves on the patient to regulate his diet and maintain a proper intake of fluid to insure against recurrence.

The maintenance of mobility and the avoidance of the lethargy of recumbency is important, the responsibility of which often devolves on the patient.

The regimen for the prevention of recurrence may be summarized as follows:

1. Maintain intake of fluid at minimum of 3,000 cc. daily
2. Avoid urinary stasis
    - Movement of patient
    - Correction of obstruction at operation
    - Provide adequate drainage
    - Maintain adequate fluid intake
3. Eradicate infection
    - Intake of fluid
    - Chemotherapy
    - Correct stasis
4. Dietary measures
    - Acid ash
    - High content of vitamins A and B
    - Limit intake of calcium
5. Adequate postoperative examination
    - Urine cultures
    - Roentgenograms: excretory and retrograde urograms

Roentgenologic follow-up should be carried out at three month intervals, in order to note early recurrence.

REPORT OF CASES

CASE 1.—W. T. F., a white man aged 54, was admitted to the hospital on Jan. 22, 1947, with acute colic of the left kidney. A roentgenogram on admission showed a shadow in the region of the left kidney, 2 by 3 cm. in diameter.

Previous History.—Operation for removal of a calculus from the left kidney was performed in 1936 and again in 1938. He remained free of symptoms from 1938 until July 1946. Gross hematuria developed in July, but subsided in a few days. He experienced pain in the left renal region in September.

Physical Examination.—Physical examination disclosed a well nourished well developed man. His blood pressure was 110 systolic and 80 diastolic. There was a scar in the left lumbar region.

Roentgenographic Data.—An excretory urogram, made on Jan. 3, 1947, revealed the right kidney to be normal. Severe hydronephrosis on the left side and obstruction at the ureteropelvic juncture were present. An area of density, 1 by 2 cm., was seen in the roentgenogram. Observations were confirmed by a retrograde urogram February 8 The chest was normal.

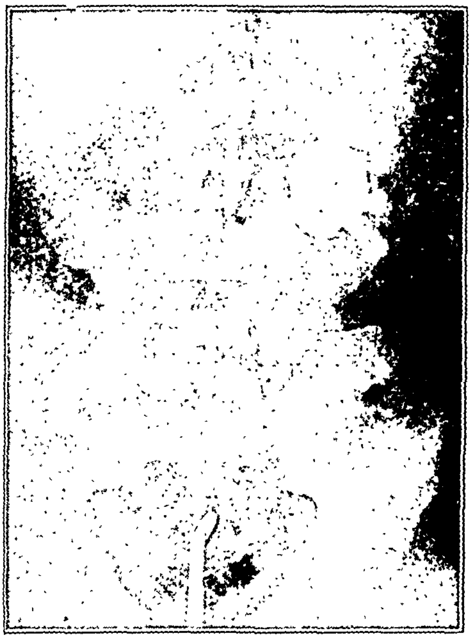

Fig. 3 (case 1).—Retrograde urogram prior to operation.

Laboratory Data.—Urinalysis revealed a specific gravity of 1.205 and a trace of albumin. Culture yielded A. aerogenes. Examination of the blood showed urea nitrogen, 8.6 mg., and sugar, 116 mg. per hundred cubic centimeters. Serum calcium was 10 mg. and serum phosphorus 4 mg. per hundred cubic centimeters.

Progress in Hospital.—Prior to operation the patient was treated with penicillin, 600,000 units in peanut oil daily, and 4 Gm. of sulfadiazine for five days.

Operation (January 25).—Nephropyelolithotomy was performed on the left side. A curved lumbar incision was made (left), removing the scar of the previous incision. The twelfth rib was resected subperiosteally. The kidney was densely adherent to the peritoneum and adjacent structures. Subcapsular delivery was accomplished. The pelvis was isolated, and an incision, 2.5 cm. in length, was made posteriorly. The pelvis was thick and fibrotic. The ureteropelvic juncture was moderately obstructed. A calculus of 1 by 2 cm. was removed from the pelvis. The ureteropelvic juncture was dilated. A nephrostomy drain with a ureteral splint was introduced through the middle calyx. The incision of the pelvis was closed, and the kidney was returned to its original position and the capsule sutured over the kidney. The wound was closed with no. 1 chromic surgical gut, with interrupted sutures. Roentgenographic examination was carried out at the operation to verify the fact that all stones had been removed.

Postoperative Course.—The postoperative course was uneventful. The nephrostomy drain was removed in three weeks. The patient was on sick leave for four weeks and returned to duty in eight weeks.

Remarks.—At the time of the patient's discharge from the hospital, the hydronephrosis was reduced in size and the obstruction at the ureteropelvic juncture was apparently relieved.

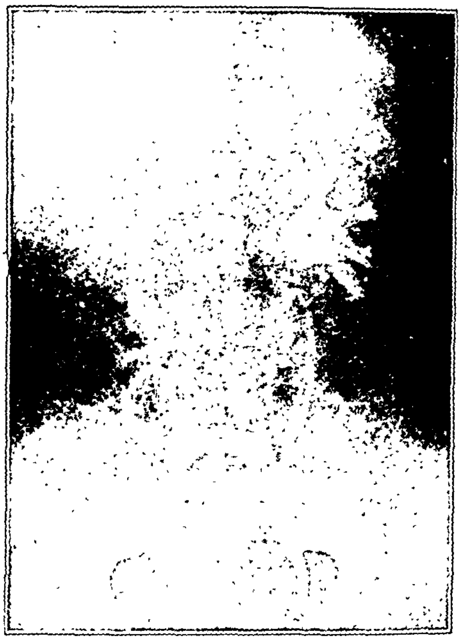

Fig. 4 (case 1).—Postoperative urogram. A radiopaque medium was injected through a nephrostomy tube.

CASE 2.—S. L. B., a white man aged 45, was admitted to the hospital Nov. 27, 1946, with hydronephrosis and a calculus in the left kidney, which had been observed at the separation center.

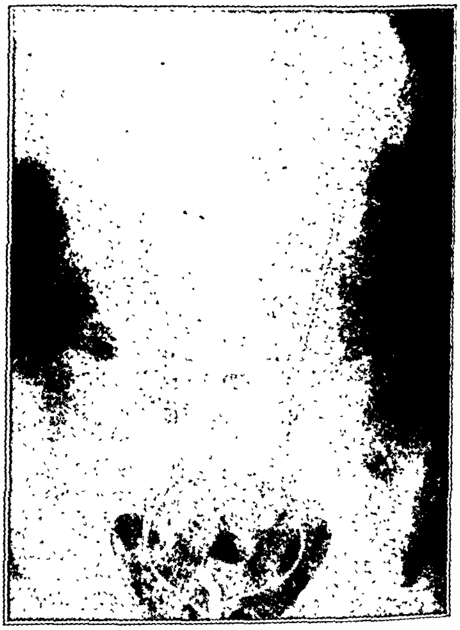

Fig. 5 (case 2).—Urogram made before operation, showing the calculus in the left kidney.

Previous History.—Nephrotomy for the removal of renal calculus was performed in June 1945. The patient complained of nagging pain in a costovertebral angle on the left side since that time.

Physical Examination.—No abnormalities were observed except for mild sensitivity in the left flank. There was a healed scar on the left flank. His blood pressure was 118 systolic and 70 diastolic.

Roentgenograms.—Excretory and retrograde urograms demonstrated hydronephrosis on the left side. The roentgenogram showed an area of density, 1 cm. in diameter, in the inferior calyx of the left kidney. There was moderate obstruction at the ureteropelvic juncture. The right kidney was normal, and no significant thoracic observations were made.

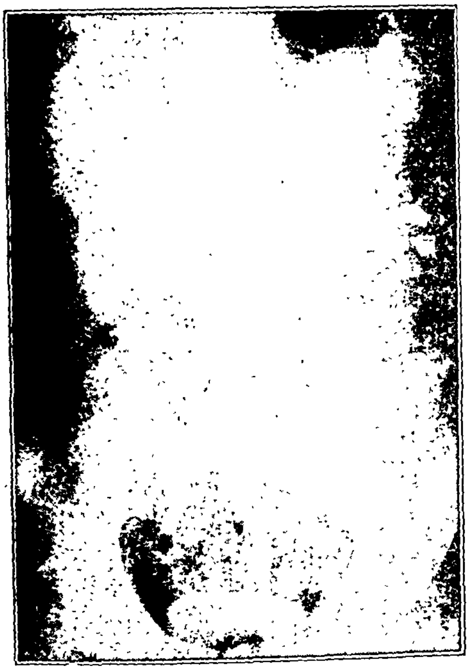

Fig. 6 (case 2).—Retrograde urogram showing the calculus in the inferior hydrocalyx.

Laboratory Observations.—Urinalysis revealed a specific gravity of 1.026. There was no trace of albumin or sugar, and microscopic observations were normal. The reaction to the Kahn serologic test for syphilis was negative. Studies of the chemistry of the blood showed urea nitrogen, 14 mg., and sugar, 133 mg. per hundred cubic centimeters. Other aspects of the blood were normal. B. proteus was cultured from the urine, from the bladder and from the left kidney. On cystoscopic examination, the p_H of the urine from the right kidney was 5.4 and from the left kidney it was 7.2. Serum phosphorus was 3.2 mg. and serum calcium 11.25 mg. per hundred cubic centimeters.

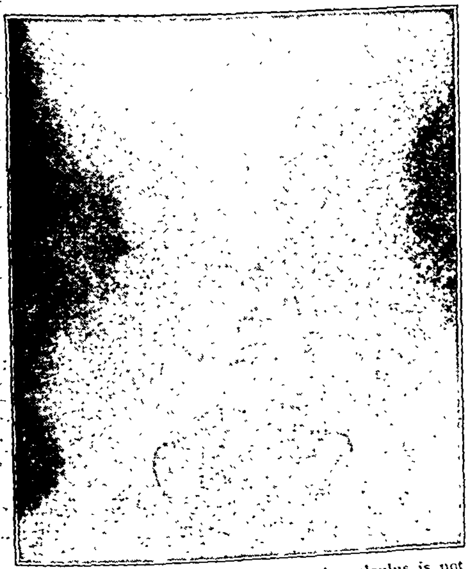

Fig. 7 (case 2).—Postoperative urogram; the calculus is not present.

Progress in Hospital.—Preoperative treatment was with penicillin and sulfadiazine (chemotherapy), to eradicate the renal infection.

Operation.—A nephropyelolithotomy of the left kidney and the left ureter was done on Dec. 3, 1946. A curved lumbar incision was made, removing the scar of the previous operation. The twelfth rib was removed, and the peritoneum and renal fascia were exposed. There were dense adhesions of the kidney to the adjacent structures. The kidney was exposed by subcapsular incision, and the pelvis was isolated. The pelvis was moderately enlarged, and there was obstruction at the ureteropelvic juncture by anomalous vessels and bands. Incision was made at the posterior aspect of the pelvis, and a calculus was removed from the lower calyx. A nephrostomy drain and a ureteral catheter splint were introduced. The kidney was replaced in its normal position, and the capsule was approximated about the renal tissue. The wound was closed with an interrupted figure-of-eight suture. A cigaret drain to the renal pelvis was inserted. The postoperative course was uneventful. The cigaret drain was removed on the sixth day, and the nephrostomy drain and the ureteral catheter splint were removed on the twenty-first day. The patient left the hospital at the end of the fourth week and returned to duty without disability.

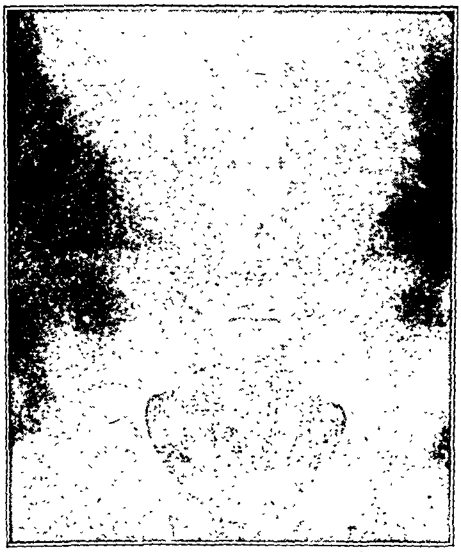

Fig. 8 (case 2).—Postoperative excretory urogram; hydronephrosis persists.

Remarks.—Chemical analysis of the renal calculus revealed phosphates, calcium oxalate, magnesium and chemicals of the ammonium (NH_4) group. Roentgenologic examination was carried out at the time of operation to verify the fact that all the stones had been removed.

Case 3.—G. S., a white man aged 28, was admitted to the hospital with a history of the onset of bilateral renal colic in 1941. There was spontaneous passage of a calculus in the left kidney. Spontaneous passage of calculi in both kidneys occurred in 1942 and again in 1944. A calculus was removed from the right kidney by operation in 1945. His previous history was not remarkable.

Physical Examination.—Physical examination disclosed tenderness over the right kidney. His blood pressure was 120 systolic and 90 diastolic.

Roentgenograms.—A retrograde urogram showed seven fairly large calculi in the right kidney, in the superior and inferior calyces and in the pelvis. There was moderate hydronephrosis. The left kidney appeared normal. The chest was also normal.

Laboratory Observations.—The urine had a specific gravity of 1.016. There was a trace of albumin, but no sugar. Ps. aeruginosa and B. proteus were cultured from the urine. Urea nitrogen in the blood was 15 mg., serum phosphorus 3.7 mg. and serum calcium 10.5 mg. per hundred cubic centimeters. The remaining observations of the blood were within normal range. The Kahn serologic reaction was negative.

Progress in Hospital.—The patient was treated preoperatively with penicillin and sulfonamide drugs for ten days, to eliminate the renal infection. On Jan. 27, 1947, a nephrolithotomy of the right subcapsular region was performed. A curved lumbar incision, 20 cm. in length, was made, removing the scar of the previous operation and exposing the renal fascia. The twelfth rib was removed. The kidney was densely adherent to the adjacent structure. The incision was made through the renal fascia and the capsule of the kidney. Subcapsular exposure was carried out. A rubber-covered clamp was applied to the pedicle to control hemorrhage. Nephrotomy incisions were made in the superior and inferior poles, and the calculi were removed. Oxidized cellulose gauze was placed in the nephrotomy incisions, and closure was accomplished with mattress sutures through the kidney, renal fascia and capsule. A nephrostomy drain through the inferior calyx and a ureteral catheter splint were placed in position. A cigaret drain to the renal fossa was inserted. The postoperative course was uneventful. The cigaret drain was removed on the seventh day. The nephrostomy drain and the ureteral catheter splint were removed on the twenty-first day. The wound healed, and the patient was able to leave the hospital during the fifth week. Chemical analysis of the stones showed calcium phosphates, oxalates and ammonia.

Remarks.—Roentgenologic examination was carried out at operation to verify the fact that all stones had been removed.

CASE 4.—O. K. M., a white woman aged 53, had an operation for the removal of stones in the region of the left kidney in September 1945. She experienced sudden severe pain in July 1946, after a long automobile ride. Stones were observed in the left kidney in August. Her previous history was noncontributory.

Physical Examination.—Observations in the physical examination were not remarkable. Her blood pressure was 118 systolic and 70 diastolic.

Roentgenologic Data.—The chest was normal. A retrograde urogram showed a normal right kidney, moderate hydronephrosis, two large laminated calculi in the left kidney and ureteral constriction at the ureteropelvic juncture.

Laboratory Data.—There was no albumin or sugar in the urine. Observations of the blood were not remarkable. The Kahn serologic reaction was negative. The blood urea nitrogen was 16 mg. and sugar 97 mg. per hundred cubic centimeters. The serum phosphorus was 4.4 mg. and serum calcium 12.6 mg. per hundred cubic centimeters. E. coli and Ps. aeruginosa were cultured from the urine. In the test of renal function with phenolsulfonphthalein the results were: appearance time five minutes, 60 per cent in thirty minutes and 20 per cent in one hour, for a total of 80 per cent. Cystoscopy revealed a *p*H of 5.5 in the right kidney and 7.6 in the left kidney.

Operation.—A nephropyelolithotomy was performed December 5. A curved lumbar incision, 20 cm. in length, was made, beginning above the level of the twelfth rib, 5 cm. lateral to the spine and extending downward and forward. The scar of the previous operation was removed. The kidney was densely adherent to the peritoneum and the adjacent structure. The incision was made through the renal fascia and the capsule, and the kidney was exposed subcapsularly. Hemorrhage was controlled with a rubber-covered clamp to the pedicle. A nephrotomy and a pelvic incision were made, and two large calculi were removed. A no. 12 bulb was passed through the ureteropelvic juncture to estimate the degree of ureteral obstruction. Anomalous vessels and bands were removed at the ureteropelvic juncture. A de Pezzer catheter with a ureteral splint was introduced through the lower calyx. The kidney was placed into original position with triangular sutures at the posterior surface. A cigaret drain to the renal area was inserted. The wound was closed with no. 1 chromic surgical gut, with interrupted sutures. Roentgenologic examination was used at operation to verify the complete removal of the calculi. The postoperative course was uneventful. The cigaret drain was removed on the sixth day, and the nephrostomy drain and ureteral splint were removed after two weeks. The patient was discharged from the hospital on the twenty-first day after operation.

Remarks.—The patient was treated with sulfadiazine and penicillin postoperatively, to limit infection. Roentgenologic examination was carried out at operation to verify the fact that all stones had been removed.

CASE 5.—S. E. R., a white man aged 41, was admitted to the hospital, with a history of the onset of his present illness on July 18, 1944, when he passed three small stones from the bladder without pain. A roentgenogram on July 22 showed calculi of the left kidney. On August 4, a nephrolithotomy was performed, with the removal of a large number of calculi from the left kidney. On Aug. 31, 1945, a roentgenogram showed the recurrence of calculi in the left kidney. Gross hematuria developed on March 14, 1946, with colic in the left kidney and fever. Several small stones were passed. On November 18, a roentgenogram showed multiple calculi of the left kidney. The patient was transferred to Walter Reed General Hospital December 9.

Physical Examination.—Observations in the physical examination were not remarkable.

Roentgenologic Data.—The chest was normal. An excretory urogram indicated a large group of stones, 2 cm. in diameter, in the lower pole of the left kidney, just distal to and included in the caudal calyx. There was moderate hydronephrosis, and the superior and middle calyces were clubbed. The right kidney was normal.

Laboratory Observations.—Urinalysis revealed a specific gravity of 1.017 and no trace of albumin or sugar. Observations of the blood were not remarkable. The blood urea nitrogen was 12 mg. per hundred cubic centimeters. The Kahn serologic reaction was negative. Culture yielded Ps. aeruginosa and A. aerogenes. Tests for sensitivity to streptomycin were carried out. The serum calcium and serum phosphorus were within normal range.

Progress in Hospital.—The patient was treated with streptomycin until the urine culture was negative.

Operation (Jan. 14, 1947).—Because the patient had had two previous operations for the removal of calculi from the lower calyx and because the calculi involved the renal tissue of the lower pole, subcapsular resection of the calyces was planned. The kidney was exposed through a curved lumbar incision; the capsule was divided, and the lower calyx was resected and the calculi removed. Hemorrhage was controlled by suturing the large vessel and approximating the renal tissue over oxidized cellulose gauze, with mattress sutures through the tough capsule. A nephrostomy drain was inserted and the wound closed. The postoperative course was uneventful. Irrigation through the nephrostomy tube with solution "G" was begun on the third day. The nephrostomy drain was removed at the end of the third week, after roentgenograms and a urogram showed that the stone was absent and the condition of the renal pelvis was good. The infection recurred during the fourth week and was cleared again with streptomycin. The patient's recovery was uneventful, and he was discharged from the hospital in the fifth week after operation.

Remarks.—Because multiple small calculi were incorporated in the renal tissue, it is believed that removal of these stones, leaving a damaged kidney, would have been followed by recurrence of the calculi. Roentgenologic examination was carried out at the operation to verify the fact that all stones had been removed.

SUMMARY AND CONCLUSIONS

The incidence, causation and treatment of recurrent renal calculi, complicating recumbency of patients with war wounds, is discussed, and the operative technic is described. On account of previous renal operation, the kidneys in patients with renal calculi are adherent to the adjacent structure, making exposure difficult. The subcapsular approach reduces to a minimum the

damage to the kidney and adjacent organs and is the operative procedure of choice in these cases.

Reports of cases are included. Postoperative follow-up is emphasized.

The operative treatment of renal calculi is but a phase in the management of this disease, and the proper postoperative regimen is essential for the prevention of recurrence.

ANALYSIS OF TWO HUNDRED CASES OF URINARY CALCULI

With Particular Reference to Methods of Management of Ureteral Stones

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and
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In this paper no attempt has been made to review the literature, because such a review would not be in keeping with the title nor would time permit.

In 200 patients with urinary calculi there were seventy-seven renal stones, twenty in the upper part of the ureter, eleven in the middle part of the ureter, ninety in the lower part of the ureter and ten in the bladder; there were 4 patients with bilateral ureteral calculi and 12 with bilateral renal calculi.[1] The mortality rate was 0.5 per cent. This classification is based on the fact that the stones were located at the anatomic positions mentioned when we had to offer a solution to the patient's problem. It is obvious that many of these stones had previously been located at other points in the urinary tract.

The accompanying table offers the most practical solution to the problem of presenting a concise analysis of the ureteral stones in this series of cases.

Analysis of Cases

Location of Stones	Average Hospital Stay, Days	Percentage of Cases	Percentage of Morbidity (Chills and Fever)
Upper part of ureter (20 cases)			
Operative	17	70	57
Operative cystoscopy *	9	30	33⅓
Middle part of ureter (11 cases)			
Operative	13.5	64	70
Operative cystoscopy	14.5	36	30
Lower part of ureter (90 cases)			
Operative †	16	24.4	54.8
Operative ‡ cystoscopy	7.3	75.6	41

* This term is used in lieu of cystoscopic manipulation as the latter term does not indicate ureteral meatotomy and extraction of stones.

† There was epididymitis in 1 per cent.

‡ In 3 per cent of cases the ureter was perforated with instruments, and in 2 per cent there was prostatic abscess.

The operative approach to lower ureteral stones, with the percentage of cases involved, was as follows:

Lower quadrant	65%
Transvesical	22%
Vaginal	13%

The chemicals observed in the stones, in order of frequency, are as follows:[2] (1) calcium carbonate, (2) calcium phosphate, (3) urates, (4) mixtures of calcium carbonate, calcium phosphate and urates, and (5) oxalate (rare).

The greatest difficulties were encountered with small rough stones in the terminal aspect of the ureter. Urologists are aware of the many complications, which usually occur in the following order: pyelonephritis, prostatic abscess, septicemia and, occasionally, perforation of the ureter if operative cystoscopy is the method of choice. On the other hand, if one decides to do an open operation, the stone may be difficult to locate. Encountering the aforementioned difficulties many times has enabled us to devise a new technic for open removal of the type of stones previously mentioned.

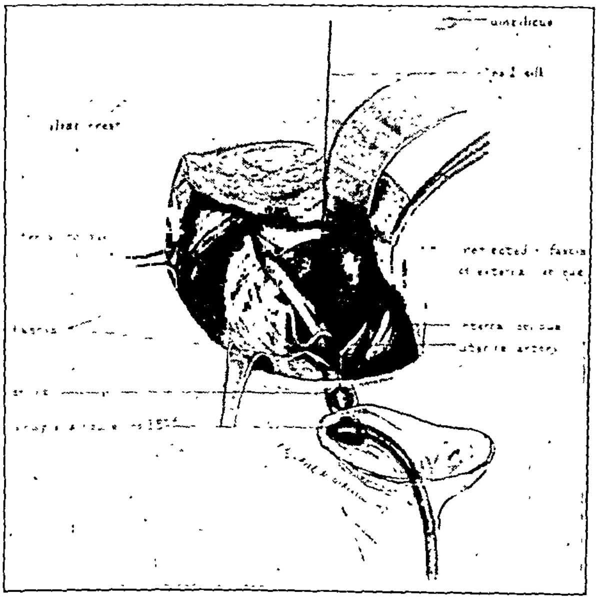

Fig. 1.—A new technic for open removal of stones in the terminal ureter is shown. By pulling upward on the silk, which is attached to the bougie, the ureter is brought up to a more accessible position and is straightened, which facilitates the removal of the stones.

After one decides that an open operation would be advisable for small rough stones in the terminal aspect of the ureter, a no. 4 or no. 5 catheter is passed by the stone and a bougie is tied to the end of the catheter with a piece of no. 1 silk, about 10 inches (about 25 cm.) long. The perineum and genitalia having previously been prepared as a sterile field, the bougie is passed into the bladder and the end of the ureteral catheter is covered with sterile towels. Through a Gibson incision, the lower aspect of the ureter is exposed and opened above the point where the uterine artery crosses the ureter in women or a similar point in men. The ureteral catheter is then pulled through the ureterotomy incision and detached from the silk. At this point the bougie fits over the ureteral orifice. By gentle traction on the silk, the lower aspect of the ureter is not only brought up to a more accessible place but, instead of forming a curve with the bow outward, the ureter is now straight. As a result of these two factors one can extract the stone with little trauma. It should be emphasized that operation for stones in the lower part of the ureter is made easier and one is less apt to open the peritoneum if the fascia covering the ureter is incised with a scalpel down to the outer coat of the ureter. Also, the fascia which is continuous with the peritoneum is dense at the point where the ureter crosses

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Read before the Section on Urology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

1. Discrepancies in total figures are due to the fact that there were stones in more than one location in several cases.

2. Personal communication to the authors from Dr. Walter Summerville, Summerville and Byrnes Laboratories, Charlotte, N. C.

the iliac vessels and just behind the bladder; sharp dissection at these points is desirable (fig. 1).

REPORT OF CASES

Case 1.—Mrs. R. O. K. (fig. 2) was first seen on Jan. 8, 1947 with a history of colic in the left kidney side ten days previously, followed by three attacks. Otherwise her past medical history was noncontributory. General physical examination revealed no abnormalities. Urinalysis revealed microscopic traces of blood, with occasional white blood cells. Cystoscopy revealed an impassable obstruction in the lower part of the left ureter, and a roentgenogram revealed an opaque shadow, 6 by 4 mm., in the region of the obstruction. With the patient under "pentothal sodium" (sodium 5 ÷ ethyl 25 — [1 — methyl-butyl] thibarbiturate) anesthesia, the second attempt at passing a no. 4 ureteral catheter to the left kidney was successful, and the oatheter was left in place for three days. During the next three days, two attempts on different days, with spinal anesthesia, were made by each of us to pass another catheter up the left side, without success. On the last attempt, the catheter, which had been in place for six days, was pulled halfway down the ureter and could not be passed back to the kidney.

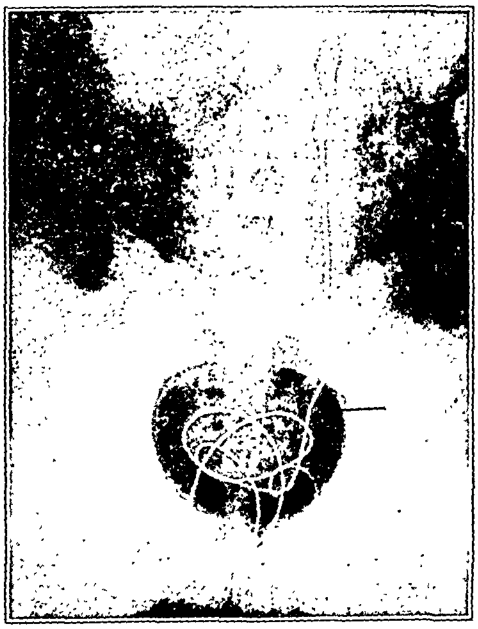

Fig. 2 (case 1).—Small rough stone in the ureter, which did not respond to dilatation and which was removed with the new technic presented.

We then decided to remove the stone, using the procedure previously outlined, as the ureter was now completely blocked and ureteral obstruction, in addition to the stone, was present. This method was successfully carried out, with the removal of a 6 by 4 mm. rough stone, and a decided narrowing of the ureter at the point where the stone had stopped was observed. The diminution in caliber at this point was due to periureteral fibrosis, which was cut parallel with the ureter, and the lumen then dilated so that it would admit a no. 14 urethral catheter. The postoperative course was uneventful, and the patient was discharged nineteen days after admission in good condition. Two months after the operation, cystoscopy was performed and a no. 8 ureteral catheter was passed, without any obstruction, to the left kidney.

Comment.—The method outlined for dealing with small rough stones in the lower part of the ureter has certain advantages, particularly if ureteral stricture or undue angulation of the ureter is present. If too vigorous attempts are made to remove such stones with the stone baskets, the end result of such trauma may be more disastrous than the original disease. If the ureter is perforated above the point of obstruction, without effecting free drainage, decided fibrosis results. This occurred in a case similar to the one just reported. On the other hand, conservative or expectant treatment often results in multiple hospital admissions with pyelonephritis; or if patients with this disease do not have pain, they may not return and a hydronephrotic sac or pyonephrosis might develop.

The transvesical or intravesical approach to impacted stones in the intramural part of the ureter or just back of the bladder is of considerable value at times. In making such an approach it is of importance that the perivesical fascia be cut just above the symphysis transversely, so that the space of Retzius is not entered. The peritoneum is then reflected off the bladder, so that the region of the ureter on the side of the stone can be palpated; this ureter does not have to be exposed. An incision is then made in the bladder, so that a ureteral meatotomy can be done on top of a grooved director. At this point, the operator's left hand is placed behind the bladder, in the region of the lower aspect of the ureter, and pressure is exerted on the ureter and the bladder, to prevent the stone from slipping upward. Using the right hand, the stone can easily be extracted with a curved hemostat. Under favorable conditions, this procedure is accompanied with little shock and there is less disturbance of normal functioning.

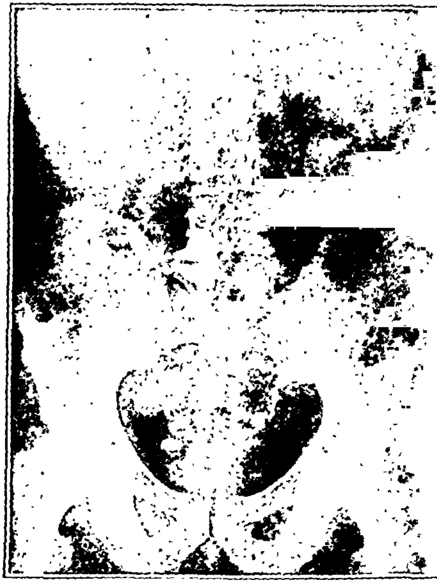

Fig. 3 (case 2).—Large stone in the terminal aspect of the ureter, which was removed via transvesical approach.

Case 2.—J. K. D. (fig. 3), aged 66, was first seen on July 29, 1946, because of increasing symptoms of prostatism for one year, with complete urinary retention on two occasions and intermittent colic of the right kidney for three or four years. The remainder of his history was noncontributory.

Physical examination revealed an old man who was in considerable distress, but whose appearance was in accordance with his stated age. There was evidence of hypertensive cardiovascular disease (his blood pressure was 170 systolic and 120 diastolic). Rectal examination revealed a grade 1 benign enlargement of the prostate. The residual urine averaged 220 cc.

Laboratory Examination.—Blood cell counts were normal. The urine contained a few red blood cells and white blood cells. Roentgenograms and cystoscopy revealed an impacted stone (1 by 0.5 cm.) about 1.5 cm. from the right ureteral orifice. A transvesical approach to the stone in the lower part of the right ureter was carried out, and a right angle de Pezzer catheter was left in place suprapubically for seven days. A suprapubic prostatectomy was done, and no hemostatic agents were used in the prostatic bed. A Freyer tube was left in the bladder for twenty-four hours and then removed. The patient's postoperative course was uneventful, and he was discharged after seventeen days in the hospital, voiding freely and without any residual urine. The suprapubic sinus had ceased to drain four days prior to discharge. The red blood cell count and the hemoglobin were essentially the same on discharge as on admission.

Comment.—In this case with two entities, the transvesical approach to the stone (1 by 1.5 cm.) seemed logical, because the stone was impacted 1.5 cm. from the ureteral orifice. After the stone was removed, the first stage of the suprapubic prostatectomy had been completed; thus, it was a two in one operation. If a retrovesical approach to this stone had been performed, the trauma would have been increased. Incidentally, no hemostatic agents were used in the prostatic bed following the enucleation, and the red blood cell count and the hemoglobin were essentially the same on discharge as on admission.

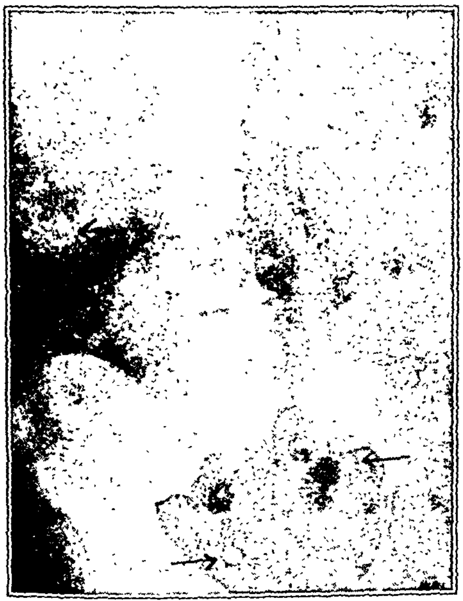

Fig. 4 (case 3).—Urogram (intravenous) showing stones in the lower part of each ureter and a nonfunctioning kidney with stones on the right side and good function on the left. The stone on the left side was removed extravesically, and the one on the right was removed transvesically.

Case 3.—G. H. (fig. 4), aged 59, was admitted to the urologic service with a history of complete urinary retention, chills and fever prior to admission. Also, the patient had noticed that his urine was foul smelling and had the appearance of pus.

The patient had previously been immobilized on the orthopedic service for several months, at intervals over a period of years. In 1908 the patient had chronic osteomyelitis of the left knee, which necessitated his spending one year in bed, and in 1937 he had a pathologic fracture of the upper part of the left leg, which would not heal and which necessitated amputation. Again in 1945, the patient was immobilized for several months because of an injury of the back. Otherwise, his past history was noncontributory.

Physical examination revealed the man to be somewhat lethargic, appearing much older than his stated age. There was evidence of generalized arteriosclerosis and hypertensive cardiovascular disease without failure. The left leg had been amputated at the middle of the thigh. Rectal examination was nonrevealing. The urine contained equal parts of sediment and liquid, with many white blood cells. Culture revealed Staphylococcus aureus. The blood cell counts showed 10,750 white blood cells and 61 mg. of nonprotein nitrogen per hundred cubic centimeters. The blood was otherwise normal.

Urograms revealed no function on the right side, with multiple stones in the lower pole of the kidney and a 12 mm. stone in the lower part of the right ureter. A hydroureter with pyelectasis was present on the left, with an 8 mm. stone in the lower part of the ureter.

Cystoscopy revealed the neck of the bladder to be normal and the stone on the right to be 1.5 cm. from the ureteral orifice, while the stone on the left was about 4.5 cm. from the ureteral orifice. The stones in the lower part of both ureters were approached through a midline incision. As the left kidney was functioning in contrast to nonfunctioning pyonephrosis on the right side, the lower part of the left ureter was mobilized first and the stone removed through a ureterotomy incision. This side was then drained and packed off, and the stone on the right was removed via the transvesical route described previously.

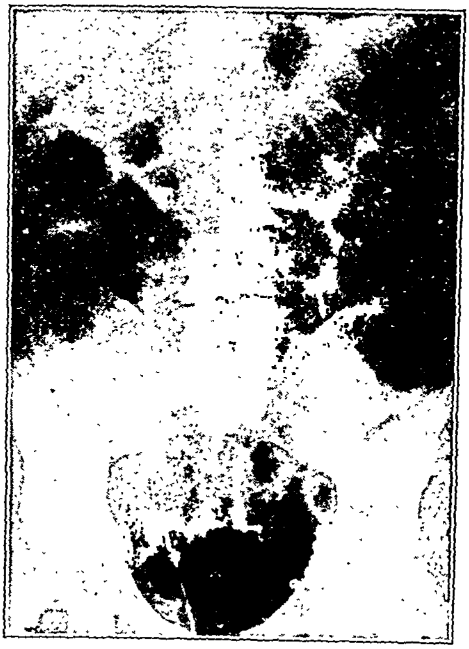

Fig. 5 (case 4).—The stone is engaged in the basket; it was removed after traction was applied for two days.

The patient's postoperative course was uneventful except for three days of low grade fever. He was discharged with office follow-up planned, on the twenty-first postoperative day, with the incision healed but with grossly purulent urine. Two months after discharge the urine was grossly clear, so that he returned to the hospital for further study. A cystogram revealed no ureteral reflux on the right, and cystoscopy showed the ureteral orifice to be normal. Urograms revealed no function on the right and no abnormality on the left side. A retrograde pyelogram of the right kidney revealed little parenchyma, with small calculi in the lower calyx. Due to the fact of poor operative risk and because the patient has remained asymptomatic and clinically well for a year, nephrectomy on the right side has not been advised.

Comment.—A transvesical approach to the right ureteral stone was technically the easiest operation that could be performed, as the stone was about 1.5 cm. from the orifice and the long-standing periureteritis of the entire right ureter would have made the retrovesical approach difficult. Cystostomy drainage of the purulent material from the right kidney was more desirable than drainage from an opening in the ureter just behind the bladder.

Why this patient had urinary retention is still puzzling, unless the decided cystitis and large particles of pus and debris from the right kidney account for the retention. In the average case a nephrectomy on the right side would have been done, but this case is illustrative of the advantage of free drainage when a kidney is practically destroyed. The function of the right kidney does not help this patient sustain life, but with such a poor operative risk a nephrectomy could be fatal.

Urologists have certain criteria for the open or closed method of removal of ureteral stones, but it is difficult to find these indications enumerated in a concise manner in the literature. The reason for the paucity of such articles is probably that each case necessitates a decision based on individual factors. Nevertheless, a knowledge of the following facts has been of considerable value to us in arriving at a decision as to which method to use in each case.

1. Location in the ureter
2. Size and contour of the stone
3. Size of the ureter and amenability to dilatation, e. g., pregnancy and postpartum state
4. Bilateral ureteral stones
5. Ability to change the axis of the stone
6. Ability to pass a catheter by the stone
7. Condition of the kidney above the stone
8. Temperament of the patient (*some patients fail to tolerate ureteral catheters*)
9. Ability to obtain free drainage after the removal of the stone by operative cystoscopy
10. Ureteral disease, including strictures and undue angulations of the ureter
11. Disease of the bladder, e. g., strictures of the urethra, epididymitis, fulminating cystitis and enlarged prostate in men

CASE 4.—H. H. B. (fig. 5), aged 52, was admitted to the hospital on Oct. 17, 1944, with colic of the right kidney. Since the age of 20, this patient had been having attacks of renal colic on both sides and had passed several small stones. Otherwise, his history was noncontributory. Physical examination revealed a well developed 52 year old white man, without any abnormal observations.

Urinalysis revealed a few red blood cells and white blood cells and amorphous phosphates. Nonhemolytic Staph. aureus and streptococci were cultured from the urine. The calcium in the blood was 10.6 mg. per hundred cubic centimeters (checked).

A roentgenogram of the kidneys, ureters and bladder revealed an 8 mm. stone in the lower part of the right ureter and a 5 mm. stone in the upper part of the left ureter, with a similar one in the middle part of the left ureter. Urograms revealed a double pelvis in the right kidney.

A meatotomy of the right ureter was done; the ureter was dilated with a catheter for three days, and another cystoscopy was done, with an unsuccessful attempt at dislodging the stone. After the second cystoscopy the patient had chills and fever for nine days, during which time the temperature ranged as high as 105 F. Blood cultures were consistently negative. During the patient's entire hospital stay, he received penicillin and, for a part of the time, sulfadiazine, with a resultant level in the blood of 12 mg. per hundred cubic centimeters. Six days after the ureteral meatotomy, the stone was engaged in a basket and traction was exerted after the method of Ockerblad, by placing a rubber band on the end of the basket and leaving it for two days. After two days of traction cystoscopy was performed for the fourth time and the stone pulled into the bladder, but, because of the size, it had to be crushed for removal from the bladder.

The patient was discharged on the fourteenth hospital day, in apparently good condition, and readmitted two weeks later, with chills, fever, nausea and vomiting, symptoms which had returned one week after his discharge. Apparently the patient had urinary sepsis, which quickly responded to treatment with penicillin and intravenous injections of dextrose. He was discharged three days after admission. The patient was seen one month after discharge, in excellent condition. He was advised to have the stones removed from the left ureter, but he has not been seen since.

Comment.—The patient would probably have had a less stormy convalescence and less permanent renal damage if this stone had been removed by open operation. The urine was infected with Staph. aureus and streptococci. At the time of his admission to the hospital and during the six days of manipulation of the stone, there was practically no drainage from the kidney. Free drainage of infected urine could have been obtained by open operation, thus minimizing the possibility of pyelonephritis and more nearly approaching normal function. The presence of two stones in the left ureter was the factor which persuaded us to use operative cystoscopy on the right side, but, in retrospect, it would seem that it should have been a discouraging factor.

CASE 5.—Mrs. V. C. (fig. 6), aged 43, was first seen on March 13, 1945, with a history of attacks of renal colic on the left side for several months, associated with chills and fever but otherwise not remarkable. The past history was noncontributory except for the removal of a stone from the right kidney three years previously. The results of the physical examination were within normal limits.

Urinalysis revealed a few red blood cells and white blood cells. Hemolytic Staph. aureus was cultured from the urine. The calcium in the blood was 10.3 mg. per hundred cubic centimeters.

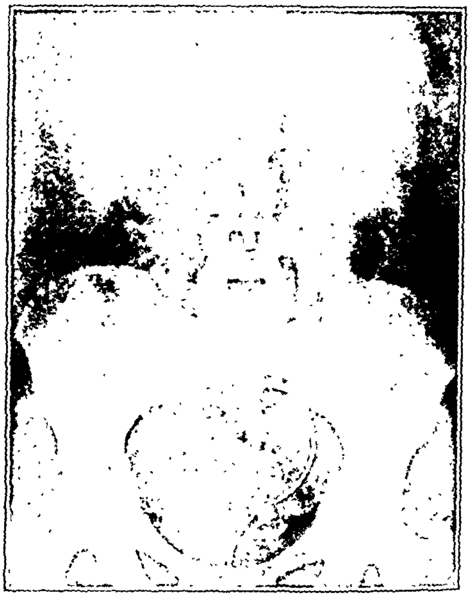

Fig. 6 (case 5).—A roentgenogram of the kidneys, ureters and bladder showing a large stone in the terminal aspect of the ureter, with a catheter dilating the ureter. The stone was removed by applying digital pressure via the vagina.

Urograms revealed a bifid pelvis on the right side and a double pelvis with a complete double ureter, without hydronephrosis, on the left, with a huge stone, as shown in figure 6, in the lower part of the left ureter.

Under spinal anesthesia a meatotomy was done on the left ureter. The orifice was visualized, and, with digital pressure via the vagina, the stone was pushed into the bladder. The stone was so large that it had to be crushed before removal from the bladder. The patient's postoperative course was uneventful, and she was discharged on the fifth hospital day. Subsequent follow-up in the office for one month was uneventful.

Comment.—After observing a case in which so large a stone was removed by operative cystoscopy, one could doubt that the size of the stone was a factor in the decision as to whether or not an open operation should be done in the lower part of the ureter for stones. In favor of operative cystoscopy, the stone was round and smooth, so that it could be pushed out of the ureter with a finger in the vagina, without the use of metal instruments in the ureter. If metal instruments had been used in the ureter in this patient, followed by edema with the resultant stasis in the presence of hemolytic Staph. aureus, the postoperative course would have been, in all probability, similar to that of H. H. B. Free drainage following removal is important. In removal of large smooth stones by operative cystoscopy from the terminal aspect of the ureter, downward digital pressure via the vagina in women or the rectum in men is at times a valuable adjunct.

SUMMARY

Two hundred patients with urinary calculi were observed during the past three years, with a mortality rate of 0.5 per cent. The cases are analyzed and classified according to the location of the stones. The cases in which there were ureteral stones are analyzed from the following standpoints: methods of removal of stones, average days in the hospital, percentage of stones removed by open operation and operative cystoscopy and complications. A new method for open removal of small rough stones from the terminal aspect of the ureter is presented, with an illustrative case. The transvesical approach to stones in the terminal aspect of the ureter is discussed, and illustrative cases are presented. Factors which enable one to decide on the method for removal of ureteral stones are listed, accompanied with reports of illustrative cases.

ABSTRACT OF DISCUSSION

OF PAPERS BY DRS. MCKAY, BAIRD, LYNCH AND COLONEL KIMBROUGH, MAJOR FURST

DR. A. E. GOLDSTEIN, Baltimore: In the analysis of the management of urinary calculi, Drs. McKay, Baird and Lynch held to no conventional procedure, and rightfully so, as each case or group of cases requires a different procedure. Of 125 patients with ureteral stones, the authors performed an open operation in about one third; half of the operations were in the lower part of the ureter. This is approximately what is done in most of the larger clinics. At the Sinai Hospital in Baltimore, my colleagues and I have, for the past few years, gradually increased the percentage of open operative procedures for ureteral stones. Our feeling is that a patient with a calculus the diameter of which is over 0.5 cm., particularly if it is rough and irregular in shape, will have a difficult time in passing it or in having it removed with one of the various ureteral instruments employed, not that larger calculi have not been removed or passed. If we fail after two attempts, an open operation is suggested. The delay in gradually dilating a ureter over a period of several weeks or the trauma produced by the introduction of the various stone removing instruments, with occasional perforation of the ureter, is far more damaging to a ureter or a kidney than simple exposure of the ureter and removal of the calculus. I am in accord with their belief about open operations and am certain that more open ureterolithotomies will be done. Our experience with the various stone removing devices has not been good. In a recent case a Council stone remover was passed up a ureter and the stone engaged, and the instrument with the stone remained caught in the intramural portion of the ureter. Gradual traction brought the instrument, the stone and a large portion of the ureteral mucosa into the bladder, which led to stricture, a ureterocele and, ultimately, nephrectomy. In analyzing the percentage of patients that suffer some morbidity (40 per cent) following the removal of ureteral calculi by cystoscopic methods, one feels that some of the patients would have fared better if an open operation had been performed. However, I should like some enlightenment from the authors as to the reason for the morbidity (60 per cent) suffered by the patients who had an open operation. Open operative procedures at Sinai Hospital are rarely accompanied with any morbidity. A new technic for handling some of the calculi in the lower third of the ureter has been devised. We have been rather fortunate and have not encountered any difficulty in locating ureteral stones with an open operation; but should we encounter difficulty, we shall employ the method suggested by the authors.

DR. FRANK C. HAMM, Brooklyn: In a recent survey of 255 cases of ureteral stone, my colleagues and I found a history of previous calculi in 29 per cent. It is the principal cause of death in spinal injuries with paraplegia; of 42 cases observed during the war, 2 deaths occurred, both from recurrent bilateral renal stone, accompanied with obstruction and urosepsis. The prevention of recurrence in the paralyzed patient deserves special consideration. During recumbency, there is a rapid mobilization of calcium from the bones, resulting in a high level of urinary excretion, lasting for from two to three months or more. The curve of urinary calcium excretion then gradually falls and may slowly return to a normal quantity, or it may level off on a plateau that is considerably above the normal level. Stasis is a natural corollary of recumbency. Because of inactivity, crystals and pieces of epithelium, which would ordinarily be excreted in the urine, tend to collect in the dependent calyces. These particles remain to provide a nidus in which calcium is readily precipitated from the supersaturated urine. Mobilization is indicated at the earliest moment. Turning these patients every two hours is not enough; they must be gotten out of bed into an upright position. Careful attention to nutrition is important. Most of these patients have a diminished blood protein content, with a reversal of the albumin-globulin ratio. A diet with a high level of protein and adequate mineral and vitamin content is required. Large doses of vitamin D should be avoided, as this may increase the excretion of calcium. The acid ash diet is not employed without specific indications, and a check of the urinary calcium excretion should be made, as in many instances the excretion of urinary calcium is increased during the use of the acid ash diet. Stasis provides the ideal groundwork for infection, which almost always develops. Infection is also introduced by catheterization, which is so often necessary in the management of this condition. The urea splitting organisms are the most dangerous and are more difficult to eliminate. Weekly examination of the urine for evidence of infection and a roentgenogram once a month, for evidence of calculary shadows, are helpful and necessary procedures. Colonel Kimbrough emphasized the care that must be taken at the time of operation to prevent the recurrence of calculi. All of the calculus must be removed, and the use of roentgen rays at operation is routine. Predisposing obstructive factors should be corrected. The relief of ureteropelvic obstruction or the resection of a bottleneck calyx are the procedures commonly employed. Careful postoperative follow-ups are indicated to eliminate all infection.

DR. HENRY SANGREE, Philadelphia: Colonel Kimbrough and Major Furst are to be congratulated on their presentation and the carefully made follow-up of their large series of patients. It is more difficult in civilian practice to follow cases for recurrent calculi. In a recent series of 50 cases of renal and ureteral calculi, the recurrence was 14 per cent. This is lower than many investigators report. Crabtree had considerably over 50 per cent. Recurrent calculi may be divided into two types: true recurrence, the formation of another stone after complete removal of the calculus, and false recurrence, or fragments or small calculi remaining after operative removal. Three major causes can usually be investigated: (1) culture of the urine to show infection, especially of urea splitting organisms, and a search for foci of infection, (2) analysis of the stone, of which chemical examination and roentgen ray crystallography present the most accurate determination of composition, (3) search for endocrine disturbances causing the formation of calculi, especially hyperparathyroidism. In our surgical methods of prevention at the time of operation, my colleagues and I look for bands and anomalous vessels, which occur in 30 per cent of our patients, and for nephroptosis, moderate or severe, which is seen in 28 per cent of our patients. The former is corrected by excision and the latter by nephropexy. Large calculi, usually associated with infection, are more apt to cause recurrent stones than small calculi, which are less likely to harbor infection and which cause a smaller amount of renal damage. Fluoroscopy and examination with roentgen rays in the operating room help to eliminate many false recurrences of stone by showing the presence of small stones and the persistence of fragments. Prevention of renal calculi is important.

Urostasis should be corrected; antiseptic drugs may be used, especially methenamine, neoarsphenamine and penicillin, *to effect a shift in the reaction of the urine.*

Dr. George R. Livermore, Memphis, Tenn.: I wish to discuss two points in Drs. McKay, Baird and Lynch's paper. First, as the inventor of one of the metal instruments for the removal of stones in the ureter, I wish to go on record as condemning them; they are dangerous and their use may result in damage or puncture of the ureter. Many urologists have had the same experience that Dr. Goldstein mentioned and that Dr. McKay reported. I feel that cystoscopic manipulation of ureteral stones should be limited to the use of ureteral catheters and flexible bougies. I agree with Dr. Goldstein that one should be gentle in the introduction of any instrument, as prolonged punching with catheters and bougies about the stone is apt to produce injury to the ureter, with resulting formation of cicatricial tissue and stricture of the ureter. I have seen cases in which this has occurred. Second, when to operate depends on the condition of the patient and the best judgment of the operator. If one can pass a catheter beyond the stone and establish drainage and if the kidney is not severely damaged or it improves with drainage, one can afford to wait. If however, the stone is impacted and one cannot succeed in passing a catheter beyond it, it would be well to remove the stone by operation as soon as is feasible.

CLOSING DISCUSSION

Dr. Hamilton W. McKay, Charlotte, N. C.: Reference has been made in this paper to the frequent occurrence of stone in persons in the Carolinas. A few years ago, one of the medical directors of one of the leading life insurance companies noted that there were many rejections of applicants from the Piedmont area of the Carolinas because of urinary lithiasis. He made an investigation and found that formation of calculi in persons in this section was five times as frequent as it was in the remainder of the United States. I have not been able to verify this statement. Nevertheless, when one considers that this series of 200 cases in a three year period represents one service of a hospital of four hundred beds; not connected with a medical school, with three urologists on that service and five other full time urologists practicing in the hospital, 200 cases of stones is a tremendous incidence. We have reviewed the 200 cases with the following points in view: 1. Certain criteria must be applied to the patient after study of his disease to determine which patient should be operated on and which patient should be treated by operative cystoscopy. In several cases we have failed because the case was not individualized. 2. We have had difficulty in open removal of some stones in the lower part of the ureter, and for this reason we have presented a technic, devised by us, which gives one better control of the lower part of the ureter, with less trauma and greater ease in removal of such stones than is true with other technics. This is done by lifting the trigone of the bladder and the lower part of the ureter up into the wound and at the same time straightening the lower part of the ureter, as described. 3. Over 50 per cent of the patients have had a prolonged stay in the hospital because of complications, such as infections of the blood stream, urinary sepsis without infection of the blood stream, prostatic abscesses or other complications. We do not believe that this should have occurred, and we are taking steps now to correct it. At the present time we believe that after the patient has been properly studied and the ureteral stone located, if there is a question as to which method should be used, an open operation should be the method of choice. Our patients are usually out of bed the second or third postoperative day, with a less stormy convalescence than is the case with other technics. Dr. Goldstein raised the point of 50 per cent of complications from infection in open operation. The manipulation which most of these patients had experienced before open operation was done was responsible for this occurrence.

Colonel J. C. Kimbrough, Washington, D. C.: I was especially interested in what Dr. Hamm said. He criticized my not encouraging the patients to exercise; movement every two hours was not enough, I agree with him. I did not include much of that aspect of treatment in the paper because of concentration on the operative technic of removing recurrent calculi. Since the last war rehabilitation service has been instituted in army hospitals, veterans hospitals and probably civilian institutions. It has now been incorporated in army hospitals on a service level and is called the Service of Physical Medicine. There are elaborate systems of exercises to prevent calculus and to remove calculus. The patient with a ureteral calculus is instructed as to which movement will make the calculus pass and which movement will keep it in. We used this technic, and in certain selected cases it seemed to give reasonable results. Dr. Bransford Lewis employed what he called succussion to remove stones, in which he actually shook the stones out of the patient. If the stone had lodged in the lower calyx on the right side, he laid the patient on his left side, took him by the feet and shook him one way until the stone passed into the pelvis, then he stood him on his feet and shook him the other way until it passed into the bladder. We are having just about as much success at that as Dr. Bransford Lewis had.

DIAGNOSIS OF HEPATITIS BY HISTOLOGIC AND FUNCTIONAL LABORATORY METHODS

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The differential diagnosis of acute hepatitis involves the separation of (1) acute damage of the hepatic parenchyma from other diseases simulating it, especially in the absence of jaundice, and (2) the different forms of acute parenchymal disease from one another. The latter may be either inflammatory or degenerative in nature. In the liver more so than in any other parenchymal organ, these two basic pathologic phenomena can be differentiated only with extreme difficulty. For practical reasons it is, therefore, preferred to call acute parenchymal disease of the liver "hepatitis."

The identification of acute hepatitis without jaundice has become important in view of the recently described infectious form[1] which is demonstrated by laboratory procedures, such as determination of sulfobromophthalein sodium retention, cephalin-cholesterol flocculation, thymol turbidity and elevated excretion of urinary urobilinogen. In some instances pathologic changes have been found in biopsy specimens. Damage to the liver without jaundice due to industrial poisons can be shown by similar procedures. In addition, the urinary excretion of bilirubin has been emphasized.[2]

Of greater clinical significance is the differentiation of the various forms of acute hepatitis when presence of jaundice indicates pathologic changes in the liver. Omitting the hemolytic variety, jaundice is usually divided into the medical form—hepatitis and cirrhosis—caused by primary disease of the liver parenchyma and the surgical form secondary to tumor, stones or stricture. Typically, in the medical form, impairment of liver cell function will exceed disturbance of bile flow, and the reverse is true in the surgical form. The table lists the most commonly used laboratory tests arranged

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Supported by a grant from the Dr. Jerome D. Solomon Memorial Research Foundation.

From the Hektoen Institute for Medical Research, the Department of [illegible] ook County Hospital, and the Department of [illegible] University Medical School.

[illegible] on Disease of the Liver before the Section on Gastro-Enterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

[1] Barker, H. M.; Capps, R. B., and Allen, F. W.: Acute Infectious Hepatitis in the Mediterranean Theater Including Acute Hepatitis Without Jaundice, J. A. M. A. **128**: 997 (Aug. 4) 1945. Klatskin, G., and Rappaport, E. M.: Late Residuals in Presumably Cured Infectious Hepatitis, Ann. Int. Med. **26**: 13 (Jan.) 1947. Neefe, J. R.: Results of Hepatic Tests in Chronic Hepatitis Without Jaundice, Gastroenterology **7**: 1 (July) 1946.

[2] Myers, C. P.: Use of Methylene Blue in Testing for Bilirubin in the Urine, J. Indust. Hyg. & Toxicol. **27**: 52 (Feb.) 1945.

according to this principle.[3] Theoretically, therefore, these laboratory examinations in combination with the clinical findings should provide the diagnosis, were it not for several rather common exceptions to this rule; namely, (1) intrahepatic biliary obstruction complicating the medical form[4]; (2) secondary damage to the liver cells due to prolonged biliary obstruction, and (3) secondary damage to the liver cells due to purulent infection of the portal triads.

Hepatic Function Tests Indicating

<table>
<tr><th><i>Dysfunction of Liver Cells</i></th><th><i>Impairment of Bile Flow</i></th></tr>
<tr><td>[illegible] tion
[illegible]
ratio
Increased urinary urobilinogen
Decrease of cholesterol ester ratio
Reduced prothrombin (despite vitamin K therapy)
Pathologic hippuric acid synthesis
Reduced galactose tolerance
Reduced plasma vitamin A</td><td>Absence of urinary and fecal urobilinogen
Elevated serum alkaline phosphatase
Hypercholesterolemia</td></tr>
<tr><td colspan="2">Elevated serum bilirubin
Urinary bilirubin
Retention of sulfobromophthalein sodium</td></tr>
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One approach to the solution of the aforementioned problems is liver biopsy in jaundiced patients. In recent years liver biopsy has been extensively employed by many investigators[5] following the extensive studies by Scandinavian[6] and British[7] workers. This paper represents an attempt to differentiate various forms of hepatitis on the basis of histologic examination of biopsy specimens. The pathologic changes in the biopsy specimen were studied as unknowns and later correlated with the results of laboratory and clinical observations.

MATERIAL AND METHODS

Biopsies, sometimes repeated, were performed on 243 patients, 43 of whom had cirrhosis and 125 acute or subacute hepatitis, the latter group representing the material of this study. Most of the biopsies were obtained by needle and some by excision during operation. Autopsy material was not included in this study, since comparison of biopsy material shortly before death with autopsy material shortly after death, obtained in a few cases, revealed that pronounced histologic changes develop rapidly after death. In arriving at the histologic criteria used, not only previous biopsy studies, especially those by Roholm and associates,[6] but also many of the excellent reported investigations on autopsy material[8] were utilized. In some instances, as in the differentiation between toxic and infectious hepatitis, our own experiences in fatal cases were helpful.[9] A series of hepatic function tests were performed simultaneously with the biopsy and at repeated occasions during the entire course of the disease. These included the tests listed in the table. As example of the groups in the table, cephalin-cholesterol flocculation,[10] thymol turbidity,[11] albumin-globulin ratio, serum al-

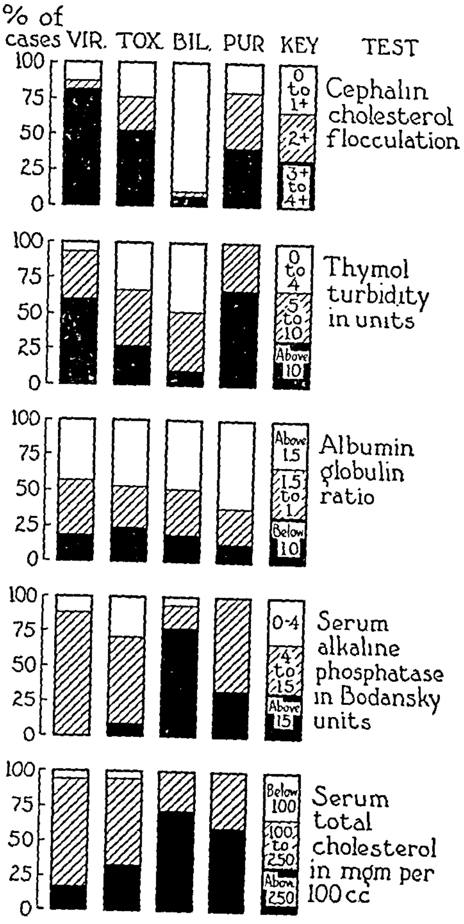

Fig. 1.—Relation of results of function tests to types of hepatitis in the studied cases. Solid black represents definite pathologic range, hashed portion (except for total serum cholesterol) slight pathologic range and white, normal range.

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[7] Dible, J. H.; McMichael, J., and Sherlock, S. P. V.: Pathology of Acute Hepatitis: Aspiration Biopsy Studies of Epidemic Arsenotherapy and Serum Jaundice, Lancet **2**:402 (Oct. 2) 1943. Dible, J. H., and McMichael, J.: The Pathology of Arsenotherapy Jaundice, Brit. J. Ven. Dis. **19**:102 (Sept.) 1943.

[8] See especially: Lucke, B.: The Pathology of Fatal Epidemic Hepatitis, Am. J. Path. **20**:471 (May) 1944. Lucké, B., and Mallory, T.: The Fulminant Form of Epidemic Hepatitis, ibid. **22**:867 (Sept.) 1946. Mallory, F. B.: Cirrhosis of the Liver, New England J. Med. **206**:1231 (June 16) 1932. MacMahon, H. E., and Mallory, F. B.: Streptococcus Hepatitis, Am. J. Path. **7**:299 (May) 1931. Roessle, R.: Entzuendung der Leber, in Henke, F., and Lubarsch, O.: Handbuch der speziellen pathologischen Anatomie and Histologie, Berlin, Julius Springer, 1930, vol. 5, pt. 1. Eppinger, H.: Die Leberkrankheiten, Allgemeine und spezielle Pathologie und Therapie der Leber, ibid., 1937.

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kaline phosphatase[12] and total serum cholesterol are recorded in figure 1.

CLASSIFICATION OF HEPATITIS

The primary (medical) type of hepatitis was subdivided into an infectious form due to a virus and a toxic form due to a multitude of etiologic factors; the secondary (surgical) hepatitis into a biliary and a purulent form.

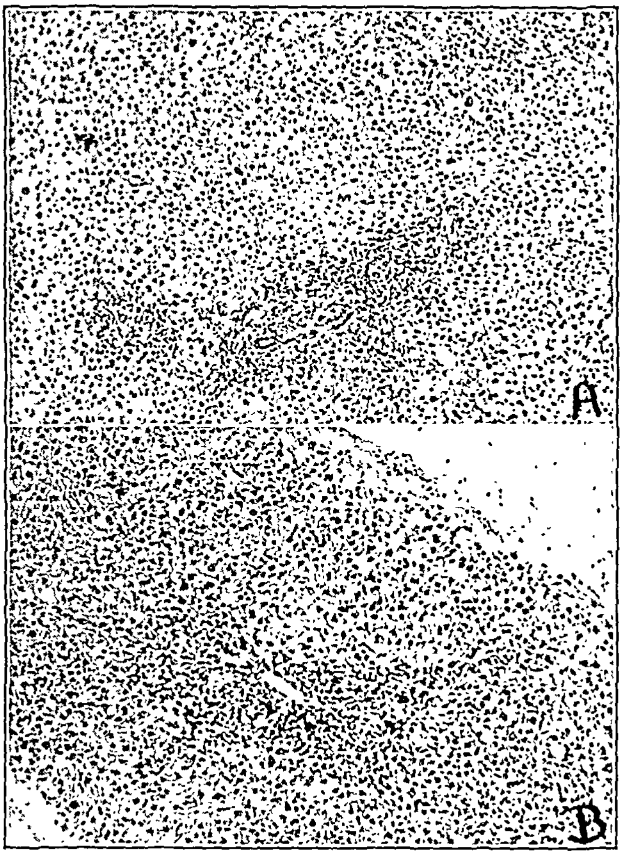

Fig. 2.—Biopsy specimens of patients with virus hepatitis. *A*, mild stage, revealing slight degree of damage to the liver cells, moderate mesenchymal reaction characterized by proliferation of Kupffer cells and intralobular and periportal infiltration of round cells. *B*, severe stage. The pronounced damage to the liver cells is indicated by irregularity of nuclei and cytoplasm. The mesenchymal reaction is also more outspoken.

"Virus" Hepatitis (16 cases studied, 5 with repeat biopsies).—The name "virus hepatitis" is preferred, although the virus cannot usually be demonstrated, since the term "infectious" may also apply to bacterial infections, such as in pneumonia or cholangitis. Virus hepatitis may appear as an epidemic or sporadic form due to infection by the gastrointestinal route and characterized by an incubation period of seventeen to forty days, or as homologous serum jaundice acquired by parenteral injection of blood or its derivatives; this latter form is characterized by an incubation period of sixty to one hundred and thirty-five days.[13] The prodromal syndromes are gastrointestinal or "grip"-like in character. Etiologic factors such as transfusions, injections or army contact could be elicited in only 4 cases.

All tests for damage to liver cells were positive in result, the degree depending on duration and severity of the disease. There was some impairment of bile flow, the alkaline phosphatase being usually slightly elevated. Episodes of intrahepatic biliary obstruction were found in 12.5 per cent of the cases.

Pathologically there was a diffuse damage to liver cells, slightly more pronounced centrally. The liver cells revealed irregular staining qualities of cytoplasm and nuclei and hazy outlines and often were completely hyalinized (Councilman bodies). Considerable regeneration, especially central, may be found early and become prominent in the healing stages. Fatty changes were rare. The strong mesenchymal reaction was characterized by proliferation of Kupffer cells and accumulation of round cellular. often phagocytic elements in and occasionally around the sinusoids; the periportal fields also revealed dense infiltration with similar cells. Neutrophilic polymorphonuclear leukocytes were almost completely absent; eosinophils, however, were not rare (fig. 2). Proliferation of immature bile ducts was found in more protracted cases, often also being associated with marked fibrosis radiating from the periportal fields. In the fatal form "explosive" destruction of liver cells with almost complete phagocytosis of the cellular remnants was present.

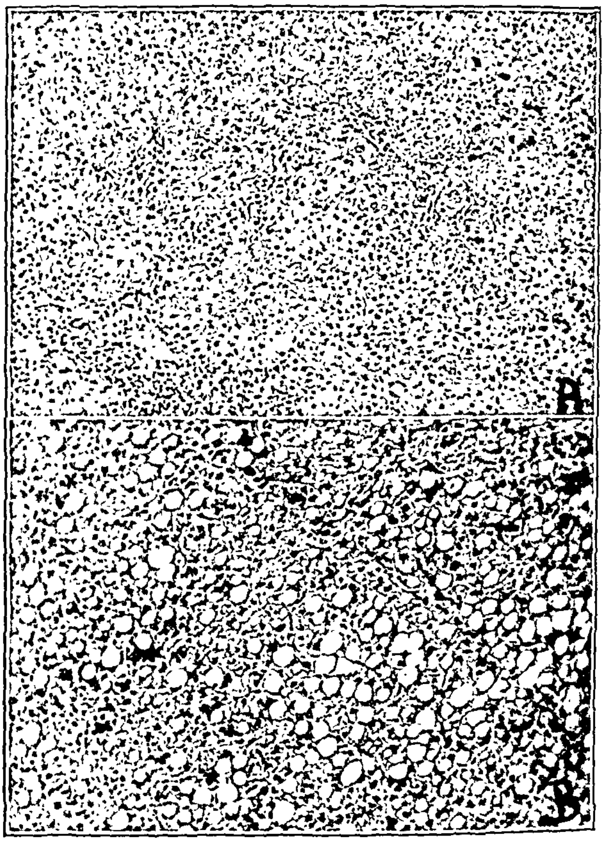

Fig. 3.—Biopsy specimens of patients with toxic hepatitis. *A*, Pronounced damage to liver cells, accentuated in central portion of lobule. There is little mesenchymal reaction, especially so in the periportal area. *B*, Diffuse fatty metamorphosis. The liver cells are damaged and many bile casts are noted.

Toxic Hepatitis (21 cases studied, 10 with repeat biopsies).—It was due to various chemical (e.g., arsenic and cinchophen), bacterial (e.g., pneumococci) or endogenous (as in hyperthyroidism) toxins, or unknown injurious substances. In 8 cases an etiologic factor was elicited. The prodromal symptoms were variable, often being of short duration; occasionally there occurred protracted malaise. In general, the results of tests for damage to liver cells were abnormal. However, in a considerable number of cases the cephalin-cholesterol flocculation and thymol turbidity reactions were negative even when considerable damage to liver cells was indicated by the other tests. Tests indicative for impaired bile flow were positive in result more often than in the virus form, and intrahepatic biliary obstruction occurred in 33.3 per cent of these cases. Renal impairment was present in 28.5 per cent of the cases, as indicated by elevation of nonprotein nitrogen and other clinical and laboratory evidence of renal damage, such as oliguria and albuminuria. This renal impairment was even more strikingly represented in a series of fatal cases already mentioned.[9]

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[12] Bodansky, A.: Determination of Serum Phosphatase: Factors Influencing the Accuracy of the Determination, J. Biol. Chem. **101**: 93 (June) 1933.

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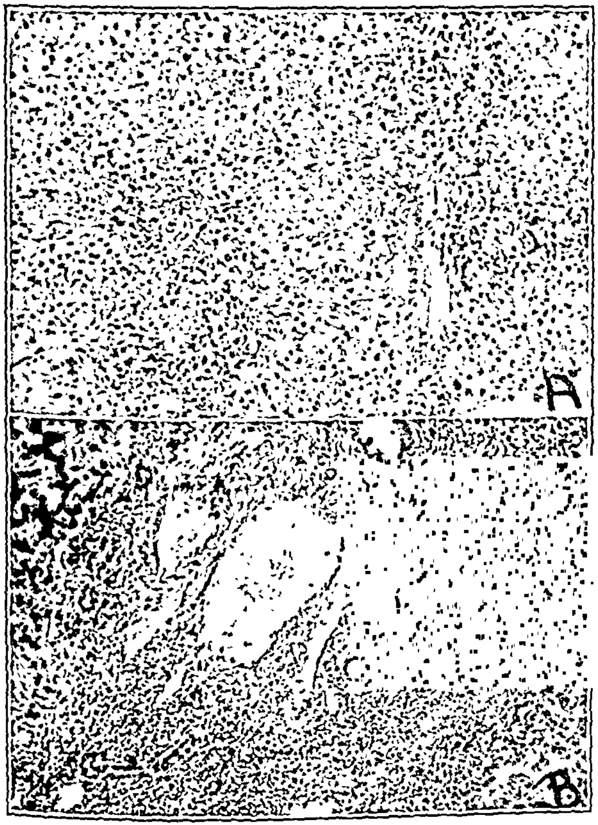

Fig. 4.—Biopsy specimens of patients with secondary hepatitis. *A*, biliary hepatitis. Bile-casts are seen in the center of the lobules. There is moderate damage to the liver cells; the periportal fields reveal fibrosis and bile duct proliferation, but little infiltration. *B*, Purulent hepatitis. Dense round and polymorphonuclear infiltration of the portal triads. The bile ducts themselves are free; the adjacent liver parenchyma shows cellular damage.

Histologically, more or less severe damage to liver cells was seen with coagulation necrosis and partial hyalinization of the cells. Fatty changes were commonly found, and in 3 cases dominated the histologic picture so as to produce diffuse fatty liver. The parenchymal damage was somewhat accentuated in the central areas. The mesenchymal reaction, when present, was decidedly subdued. Kupffer cell mobilization and round cellular macrophagic elements were not as prominent as in the virus form. Occasionally, however, a significant number of neutrophilic leukocytes could be seen (fig. 3). In the fatal cases, either central or peripheral necrosis was rather common and the gradual cell death with the presence of anuclear cell fragments was characteristic. In cases of intrahepatic biliary obstruction, bile casts appeared out of proportion to the amount of cellular damage. Proliferation of bile ducts occurred to a slight degree only.

Biliary Hepatitis (73 cases studied, 11 with repeat biopsies).—The damage to the cells is due to "back flow" of biliary products, probably bile acids. Its extent depends on duration and degree of biliary obstruction and is, therefore, far more pronounced in malignant tumors or strictures where obstruction is usually complete than in cholelithiasis. In our series, biliary hepatitis occurred in 33 patients with malignant tumors and 40 with cholelithiasis. As the process progressed, there were abnormal reactions to most tests for damage to liver cells. However, the cephalin-cholesterol flocculation was normal in most cases and the thymol turbidity only slightly elevated. The tests for biliary obstruction gave typically positive results. Renal damage as measured by elevated nonprotein nitrogen was found in 26.3 per cent of these cases. Histologically, bile casts and intracellular bile granules chiefly in the central zone indicated biliary stasis out of proportion to the degree of damage to the liver, especially in the earlier stages. However, every specimen examined revealed some damage to liver cells, predominantly in central areas. In later stages bile casts were also seen in the periphery of the lobules, the intermediary zone remaining free. Large areas of diffuse necrosis of the liver cells revealing biliary imbibition may appear (bile infarcts). Mesenchymal reaction was subdued, polymorphonuclear leukocytes being uncommon except in small focal necroses in cholelithiasis. Periportal infiltration was in the background. The Kupffer cells were proliferated and laden with bile. The periportal fields revealed a moderate amount of bile duct proliferation, and in the more protracted cases there was often pronounced periportal concentric fibrosis, sharply demarcated from the adjacent parenchyma (*fig. 4 A*). As the process progressed, the lobular pattern around the periportal fields became distorted and the picture resembled biliary or obstructive cirrhosis.[14]

Purulent Hepatitis (15 cases studied, 2 with repeat biopsies).—Purulent hepatitis is due to a bacterial infection of the portal triads apparently resulting from organisms which have passed from the portal system through the wall of the liver sinusoids into the perisinusoidal tissue spaces and are then carried to the terminal lymphatics, chiefly located in the portal triads. A perilymphangitic inflammation is set up and may encroach on the bile duct from the exterior. Less commonly, the infection can ascend via the lumen of the bile duct. The severity of the perilymphangitis, which may progress to a frank suppuration, does not depend on duration or degree of biliary obstruction and may even be found without it. It depends far more on inflammatory processes in the portal system, especially as seen in cholelithiasis. Our series consists of 11 cases of cholelithiasis, 2 of carcinoma of the pancreas and 1 each of duodenal ulcer and carcinoma of the stomach. Since this inflammation leads to toxic damage of the liver parenchyma, all tests for damage to liver cells become positive in result. The cephalin-cholesterol and thymol turbidity reactions may become positive if such a purulent process complicates previously simple biliary hepatitis. The tests for impairment of bile flow elicit positive reactions to a varying degree. Jaundice is not necessarily pronounced. However, clinical evidence of bacteremia, such as chills, fever and leukocytosis, are often encountered.

Histologically, inflammatory infiltration of the periportal fields was predominant, polymorphonuclear leukocytes being common. The bile ducts showed decided proliferation, chiefly mature in character. Leukocytic infiltration often extending along the proliferated bile ducts was in larger portal triads, especially localized around the lymphatics. The liver parenchyma showed more or less diffuse damage to the liver cells and also focal necroses, which may become rather extensive (fig. 4 *B*). The evidence of biliary stasis varied in individual cases. In later stages the picture may simulate what has been called infectious cirrhosis.[15]

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COMMENT

Liver biopsy has not only permitted a better evaluation of the hepatic function tests,[16] but it also has facilitated the clinical differentiation of hepatitis into several forms.

An attempt was made on the basis of morphologic criteria to subdivide primary hepatitis, which before World War II was usually called "catarrhal jaundice," into two groups, virus and toxic. In civilians the etiologic classification is usually difficult because causative agents are not often elicited. In the benign as well as in the fatal cases[9] the morphologic picture of toxic hepatitis was somewhat more commonly found than the virus form. The division of secondary hepatitis into two groups is of value because it emphasizes that in biliary obstruction damage to liver cells may occur early due to purulent inflammation. Some significance may also lie in the fact that the purulent form is suggestive of cholelithiasis, and this may have some value in distinguishing benign from malignant obstruction.

In the differentiation of the various forms of hepatitis, function tests may be of only limited help since damage to liver cells is present in all forms. The functional impairment may vary, depending on the stage of the disease; for example, in biliary hepatitis it may become apparent only with longer duration of the obstruction. In general, therefore, tests for parenchymal damage such as albumin-globulin or cholesterol ester ratios, excretion of hippuric acid, galactose tolerance, response of prothrombin time to vitamin K or plasma vitamin A do not necessarily differentiate the various forms of hepatitis. The cephalin-cholesterol flocculation is of greater value, and less so the thymol turbidity test, since these are only slightly affected, even in later stages of biliary hepatitis. However, one may also find negative cephalin-cholesterol flocculation and thymol turbidity reactions in a fair number of cases of toxic hepatitis, and positive cephalin-cholesterol flocculation and thymol turbidity reactions are often found in purulent hepatitis, which, being a secondary type of hepatitis, has a similar clinical significance to that of the biliary form. The tests for impairment of bile flow help also only to some degree in the distinction of the different forms of hepatitis. Obviously, more may be accomplished by repeated function tests during the course of the disease; e.g., urinary excretion of urobilinogen.[17]

The clinical differentiation between primary (medical) and secondary (surgical) hepatitis is facilitated by the use of the biopsy. The chief difficulty in our experience has been differentiation between toxic and early biliary hepatitis. In addition, occasionally a case may occur in which the morphologic picture does not permit a definite diagnosis. The difficulty in the clinical and functional differentiation of surgical and medical types of jaundice becomes especially apparent in the later stages of extrahepatic obstruction when the parenchymal damage simulates that found in the medical jaundice. It is in those instances that liver biopsy becomes of added importance because the longer the duration of the extrahepatic obstruction, the more characteristic becomes the morphologic picture for biliary hepatitis and the easier it is to differentiate it from virus or toxic hepatitis. The liver biopsy thus aids in the differentiation of intrahepatic obstruction in primary hepatitis from extrahepatic obstruction.

SUMMARY

With the help of liver biopsies, the attempt has been made to divide acute hepatitis into a primary (medical) form and a secondary (surgical) form. The former is further subdivided into virus (infectious) and toxic varieties. The secondary form is subdivided into a biliary (due to extrahepatic obstruction) and a purulent type (due to inflammation in the portal triads). This differentiation is based on pathologic findings in biopsy specimens, and is correlated with the laboratory findings found in the different groups. This classification of hepatitis into four groups helps in the differential diagnosis of jaundice by laboratory methods, especially distinguishing surgical from medical types of jaundice. The diagnosis of intrahepatic biliary obstruction in medical jaundice and its differentiation from extrahepatic biliary obstruction and the recognition of secondary damage to the liver in extrahepatic jaundice are especially facilitated through this approach.

DISEASE OF THE LIVER

A Review of Some Clinical and Biochemical Problems as Revealed by Systematic Biopsy Studies

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Needle biopsy of the liver was first performed by Paul Ehrlich about 1883 and since then nearly 2,500 biopsies are on record.[1] Used widely in tropical medicine for the detection of amebic abscesses, it was recently revived for systematic use by Iversen and Roholm,[2] who recorded 160 liver punctures without a death. My associates and I began to use the method in the British Postgraduate Medical School in 1941 with the confidence suggested by Iversen and Roholm's report of its safety and in view of the urgent problems of hepatitis resulting from the war. In our first 150 biopsies we had 2 cases of intraperitoneal hemorrhage leading to death, both patients, however, having a degree of damage to the liver so severe that puncture only accelerated an already certain fatal issue. At that stage, however, we reviewed the technic and changed from a 2 mm. bore to a 1 mm. bore needle, and also decided to use a 5 inch (12.7 cm.) rather than a 3 inch (7.6 cm.) needle so as to take the cylinder of tissue from the depth of the liver rather than run the risk of leaving a bleeding hole on the surface. Since then Dr. Sherlock has carried out a further 250 biopsies with no fatalities. The risk of hemorrhage, however, is still present, and on two occasions transfusions have been required. On one occasion an abnormally placed gallbladder was punctured and the patient had to be operated on forthwith, but he made a good recovery after drainage of Morison's pouch. The technic is described in detail by Dr. Sherlock.[1]

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[15] MacMahon, H. E.: Infectious Cirrhosis, Am. J. Path. **7**:77 (Jan.) 1931.

[16] Hoffbauer, F. W.; Evans, G. T., and Watson, C. J.: Cirrhosis of the Liver with Particular Reference to Correlation of Composite Liver Function Studies with Liver Biopsy, M. Clin. North America **29**:363 (March) 1945. Sherlock, S. P.: Bioc
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Address of the foreign invited guest read in a symposium on Disease of the Liver before the Section on Gastro-Enterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

[1] Sherlock, S. P. V.: Aspiration Liver Biopsy, Lancet **2**:397, 1945.

[2] Iversen, P., and Roholm, K.: On Aspiration Biopsy of the Liver, with Remarks on Its Diagnostic Significance, Acta med. Scandinav. **102**:1, 1939.

DIAGNOSTIC PROBLEMS

In obscure diseases of the liver and blood the technic gives most valuable information of which the following are examples.

A patient with an enlarged spleen of obscure character in whom sternal marrow biopsy had given no help showed in the liver section large fibrillated cells with eccentric nuclei characteristic of Gaucher's disease.

A man aged 54 with macrocytic anemia and leukopenia refractory to all forms of liver therapy showed increased proliferation of the endothelium of the hepatic sinusoids. The picture most closely resembled the histiocytic medullary reticulosis described by Bodley-Scott and Robb-Smith.[3]

A soldier, aged 28, who had served in the Central Mediterranean Force, returned to England with irregular fever and enlargement of the liver, spleen and lymph nodes. No parasites were seen on sternal or splenic puncture, but liver biopsy showed reticuloendothelial proliferation in the hepatic lobules with characteristic Leishman-Donovan bodies of kala-azar.

A man aged 65 complained of anorexia and loss of weight. Barium meal, etc., failed to reveal an organic cause. Liver biopsy showed a squamous epithelioma. Repeat examination of the esophagus showed an extensive infiltration of the esophagus with carcinoma only visible on the lateral view and causing no obstruction.

A patient with pulmonary tuberculosis had an edematous type of nephritis. The differential diagnosis lay between nephrosis and amyloid disease. The congo red test was inconclusive; liver biopsy showed extensive infiltration with amyloid tissue.

STUDY OF DAMAGE TO THE LIVER AND RECOVERY

In acute hepatitis[4] one encounters the same pathologic pictures, whether the disease be of the ordinary epidemic variety or the result of arsenical or serum inoculations. Perhaps the only difference is that inoculation jaundice tends to be rather more severe. Intense destruction of liver cells with loss of the normal pattern of the liver characterizes the diffuse type of liver damage. So long as the reticulin pattern of the liver is preserved, full recovery and restoration of normal structure may take place. In others, however, the destruction is zonal in type, affecting particularly the periportal and central regions of the lobule. Some condensation of reticulin may occur in the periportal regions, and as the liver cells regenerate this zone cannot be occupied by liver cells and remains a picture of residual periportal scarring and slight bile duct proliferation. This does not constitute true cirrhosis. Such patients have no residual symptoms, and in 1 patient who died of another disease two years after his jaundice these periportal scars, previously seen at biopsy, had practically disappeared. In a very few instances true distortion of the architecture of the liver may take place with the development of cirrhosis. Even such scarred livers, however, are compatible with excellent health or only the mildest feeling of fulness after meals.

In passing I might note that I have seen normal recovery of severe hepatitis in a patient suffering from gross protein deprivation from a gastroileal fistula.

CORRELATIONS OF LIVER DAMAGE WITH HEPATIC FUNCTION TESTS

Dr. Sheila Sherlock[5] has carried out an extensive investigation using certain standard hepatic function tests and nearly simultaneous biopsy controls.

1. *The Hippuric Acid Synthesis Test.*—Synthesis of hippuric acid is impaired rather early in hepatic disease, but it is unfortunately also impaired in other conditions in which the liver on histologic section appears to be completely normal. Poor excretion occurs in cases of renal damage, and it is essential to check the test by running a urea clearance test at the same time. Owing to the absence of any recognizable histologic change in the liver, I feel exceedingly skeptical of the use of the hippuric acid synthesis test in the diagnosis of impaired hepatic function in such conditions as diabetes and rheumatoid arthritis.

2. *Bilirubin and Serum Alkaline Phosphatase.*—In obstructive jaundice serum phosphatase is raised up to 90 King-Armstrong units, and is seldom below 30 units. In hepatitis, however, it is seldom above 30 units. This is a most valuable aid in the differential diagnosis of obstructive jaundice from hepatitis.

Cases of hepatitis were subdivided into various grades of severity according to the number of surviving liver cells in each lobule as follows:— grade A, 75 to 100 per cent liver cell survival; grade B, 50 to 75 per cent; grade C, 25 to 50 per cent, and grade D, under 25 per cent. It was found that the depth of the jaundice was closely correlated with the severity of the damage to the liver cells. Phosphatase levels did not differ significantly in the various grades.

3. *Galactose Tolerance Test.*—We have used the time of disappearance from the blood of an injected dose of galactose (0.5 Gm. per kilogram of body weight: normal average, 60 minutes; range, 30 to 90 minutes). In grade A hepatitis the galactose time is not impaired. In grade B hepatitis it is usually about the upper range of normal, while in grades C and D significant impairment is the rule. Excretion of hippuric acid, on the other hand, is impaired early but gives no index of the severity of damage to the liver in the more severe grades.

The albumin-globulin ratio falls in grade C and is usually reversed (below 1) in grade D.

POSTHEPATITIS SYNDROME

Dr. Sherlock and Miss Walshe[6] have carried out extensive investigations on a number of patients with the posthepatitis syndrome sent by the military authorities. In practically all instances the livers have been histologically normal, and we have formed the impression that these patients are mostly suffering from a "hepatic neurosis." In few instances does there seem to be permanent damage to the liver after hepatitis.

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[4] Dible, J. H., and McMichael, J.: Pathology of Arseno-Therapy Jaundice, Brit. J. Ven. Dis. 19:102, 1943. Dible, J. H.; McMichael, J., and Sherlock, S. P. V.: Pathology of Acute Hepatitis, Lancet 2:402, 1943.

[5] (*a*) Sherlock, S. P. V.: Biochemical Investigations in Liver Disease: Some Correlations with Hepatic Histology, J. Path. & Bact. 58:523, 1946. (*b*) Hippuric-Acid Synthesis Test of Liver Function, Lancet 1:159, 1946.

[6] Sherlock, S. P. V., and Walshe, V.: The Post-Hepatitis Syndrome, Lancet 2:482, 1946.

OBSTRUCTIVE JAUNDICE

The sequence of events is being followed in a large series of cases of obstructive jaundice.[5a] Bile thrombi accumulate in the bile canaliculi within the lobule, mainly in the central zones. Sooner or later the surrounding liver cells may degenerate in a focal fashion, and then one sees an area of bile necrosis. The bile ducts in the portal tracts proliferate with swollen epithelium, and a little periportal scarring may also develop. It is important to keep this picture in mind, as the histologic picture may closely resemble that seen in recovering hepatitis with residual periportal scarring. In the early days of our work we made at least one mistake in diagnosis of a biopsy specimen from failure to differentiate between these two pictures.

CONCLUSION

Aspiration liver biopsy seems now to have a diminishing risk and, provided it is carried out in hospital with strict preparations (1) to prevent the possibility of bleeding in a jaundiced patient and (2) to transfuse in the rare instances in which bleeding may occur, it is justified as a helpful procedure in obscure diagnostic problems when there is reason to suspect that the liver may be involved pathologically.

As an instrument of research it will yield much further information, as biochemical estimations of glycogen and histochemical and cytologic technics may also be applied to the fragments of tissue obtainable. As time goes on one may expect this method to be a source of further light on problems of pathologic changes and function of the liver in blood and metabolic diseases.

THE ACCURACY OF DIAGNOSIS OF JAUNDICE

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The primary responsibility in the management of the patient with jaundice is the decision whether or not to operate. In relation to this question all other factors are secondary in importance. Most of the more recent publications emphasize methods of diagnosis. In large part these methods are laboratory procedures and are clinical applications of the known physiology of the liver. These "batteries" and "profiles" of hepatic function include a multitude of tests which a clinician or general practitioner must attempt to evaluate. It is well known that one test has little value; a number must be employed if the total functional status of the liver is to be measured. It is difficult for the practicing physician to know what tests he should use and how the results should be interpreted. Unfortunately, too, this emphasis on laboratory procedure tends to depreciate the value of history taking and careful physical examination, and symptoms and signs become relegated to an inferior position. It is reassuring to know that not infrequently problems in diagnosis are encountered by the gastroenterologist and clinical investigator who have available an abundance of hepatic function tests, as well as the practitioner who is so often called on to establish his diagnosis through bedside observation with a limited number of tests.

It is true that in the majority of patients with jaundice resulting from disease of the pancreobiliary tract, the nature and site of the causative lesion can be rather readily determined through the interpretation of the clinical picture, and the accepted treatment, surgical or medical, can be instituted. For instance, the onset and course of infectious hepatitis in young persons is most often quite clear. The clinical picture of portal cirrhosis usually has a typical pattern. The story of severe pain in the right upper quadrant followed by jaundice, with a history of previous attacks, in a woman of middle life or beyond indicates the presence of cholelithiasis with great reliability. The symptoms and signs of neoplastic obstruction may produce a less well defined clinical picture; yet frequently the course is characteristic. These diagnoses are made on firm clinical grounds and can be supported by easily acquired laboratory evidence.

However, unfortunately, every one has encountered a small but definite group of jaundiced persons in whom diagnosis resists the usual investigative methods. These persons are usually 40 years of age and older; the history is not typical; the physical findings do not conform, and the results of laboratory procedures may be misleading. Often pain is absent; frequently the jaundice is either prolonged or recurrent. After a period of observation, because of insecurity of diagnosis, exploratory laparotomy is suggested to avoid overlooking a stone in the common duct or new growth.

If it is accepted that the primary responsibility in the management of the jaundiced patient is to decide whether the treatment should be medical or surgical, it is practical to employ a classification which possesses these therapeutic indications. Thus one can divide jaundice (due to disease of the pancreobiliary tract) on a therapeutic as well as anatomic basis into intrahepatic jaundice and extrahepatic jaundice:

I. Intrahepatic jaundice
    1. Hepatocellular jaundice, parenchymal jaundice, etc.
    2. Infectious hepatitis, dystrophies, cirrhoses
    3. The treatment is medical
II. Extrahepatic jaundice
    1. Mechanical obstruction of the common bile duct
    2. Carcinoma, common duct stone, stricture
    3. The treatment is surgical

Intrahepatic jaundice includes all those lesions within the liver (it is frequently referred to as hepatocellular jaundice or parenchymal jaundice) such as infectious hepatitis, the dystrophies and cirrhoses. Here the treatment is medical.

Extrahepatic jaundice refers to those lesions which produce mechanical obstruction of the common bile duct below and beyond the liver (it is commonly called obstructive jaundice) such as common duct stone, new growths and stricture. Here the treatment is surgical, whether it be for cure or palliation.

In this study we have examined the experience of a general hospital in the management of jaundice. The purpose was to attempt to define the limitations of diagnostic methods through a frank appraisal of the degree of accuracy of diagnosis. The findings should reflect the experience of hospitals throughout the country at the general hospital level—the level at which a significant portion of the population is served.

MATERIAL AND METHOD

The records of 412 patients admitted to the Buffalo General Hospital during the period 1936 to 1946 with the presenting sign of icterus were reviewed. The patients were admitted on various services such as medicine, surgery and pediatrics, both ward and private room; and consequently a number of physicians and surgeons shared in their management. For this analysis,

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From the Department of Medicine of the University of Buffalo and the Buffalo General Hospital. [illegible] of the Liver before the Section on [illegible] the Ninety-Sixth Annual Session [illegible] Atlantic City, N. J., June 11, 1947.

first choice diagnoses were used in all instances. In each case the causative lesion was within the pancreobiliary tract; patients with hemolytic jaundice were excluded from the study. In most instances, the diagnosis was confirmed through surgical intervention, biopsy or postmortem examination. However, in the majority of cases of infectious hepatitis and in some cases of cirrhosis, the diagnoses were necessarily clinical.

The distribution of cases is shown in table 1.

TABLE 1.—*Distribution of Cases*

	Number	Percentage
A. Intrahepatic jaundice	175	42.5
1. Hepatitis—60		
2. Cirrhosis—91		
3. Dystrophy—24		
B. Extrahepatic jaundice		
1. Calculus	152	36.9
2. Carcinoma of pancreas	63	15.3
3. Biliary carcinoma*	15	3.6
4. Stricture	7	1.7

*The designation biliary carcinoma refers to malignant lesions other than neoplasms of the pancreas, such as carcinoma of the gallbladder, carcinoma of the bile ducts and metastatic carcinoma.

RESULTS

A. Analysis of Series.—An erroneous diagnosis (between intrahepatic jaundice and extrahepatic jaundice) was made in 16 of the 412 cases, an error of 3.8 per cent as shown in table 2.

TABLE 2.—*Errors in Four Hundred and Twelve Cases*

	Cases	Percentage
Intrahepatic vs. extrahepatic	16	3.8
Among extrahepatic group	7	1.6
Need for laparotomy	26	6.3

In 7 cases (1.6 per cent) a wrong diagnosis among the three common types of extrahepatic jaundice (stone in the common duct, carcinoma, stricture) was made, although the presence of extrahepatic obstruction was recognized.

In 26 cases (6.3 per cent) surgical exploration was performed to obtain a final diagnosis. This figure, of course, includes some of the erroneous diagnoses.

In addition there were in the extrahepatic group 13 cases of carcinoma arising elsewhere than the pancreas or ampulla, such as carcinoma of the bile ducts, carcinoma of the gallbladder and metastatic carcinoma. These were diagnosed either carcinoma of the pancreas or, more broadly, "biliary tract carcinoma." It does not seem fair to classify these as errors, inasmuch as the presence of extrahepatic malignant obstruction was recognized.

We were surprised and disturbed by this high degree of accuracy of diagnosis (approximately 90 per cent). It is accounted for in part by the large number of cases of infectious hepatitis in young age groups, the many instances of portal cirrhosis with a typical clinical picture and the large group of patients with a stone of the common duct with a characteristic history. Ease of diagnosis in typical cases is self evident, and fortunately this large group will include the great majority of patients encountered in private and hospital practice.

B. Comparison of Two Groups of Patients.—The series of 412 patients was divided into two time periods, the first consisting of patients admitted during the five year period 1936 to 1940 (162 cases) and the second consisting of those patients studied during the six year period 1941 to 1946 (250 cases). During the first period the diagnoses were based almost entirely on the interpretation of symptoms and signs with a limited use of technical procedures, while in the second period a number of laboratory procedures were employed in addition to bedside observation such as determinations of the plasma proteins, prothrombin and its response to menadione, sedimentation rate, alkaline phosphatase, cephalin cholesterol flocculation test, thymol turbidity test, roentgenographic examination of the duodenum and needle biopsy, as well as the usual routine laboratory studies.

The results of the comparison of these two groups of patients are shown in table 3.

TABLE 3.—*Comparison of Errors in Two Periods*

	1936-1940 (162 Cases)		1941-1946 (250 Cases)	
Type of Error	Number	Percentage	Number	Percentage
Intrahepatic vs. extrahepatic	10	6.1	6	2.4
Among extrahepatic group	2	1.2	5	2.0
Need for laparotomy	12*	7.4	14*	5.6

*This figure includes erroneous diagnoses, unless early death occurred.

There is a decided improvement in the degree of accuracy of diagnosis between intrahepatic jaundice and extrahepatic jaundice, with a decline in error from 6.1 per cent to 2.4 per cent.

There is little change in the number of errors among the various lesions which produce extrahepatic jaundice (1936 to 1940, 1.2 per cent; 1941 to 1946, 2.0 per cent).

There was a slight but significant decrease in the number of patients requiring surgical intervention to obtain a secure diagnosis (1936 to 1940, 7.4 per cent; 1941 to 1946, 5.6 per cent).

It is not likely that a single reason will explain this improving rate of accuracy of diagnosis. A number of factors are responsible. Review of the records with a comparison of the two periods demonstrates more intensive and thorough clinical study during the later period as evidenced by careful histories and physical examinations with repeated observations made over a longer period of time. The studies accorded patients in the earlier period were brief and inadequate in many instances, and it seemed that frequently surgical exploration was advised before complete observations had been made. Another factor is certainly the increasing employment of laboratory procedures for purposes of confirmation. Unfortunately, as originally hoped, the separate contribution made by various hepatic function tests could not be assessed.

C. Accuracy of Diagnosis in Specific Lesions.—The rate of accuracy of diagnosis in each of the various pancreobiliary lesions which produce jaundice is shown in table 4.

TABLE 4.—*Accuracy of Diagnosis in Common Lesions**

Lesion	Correct Diagnosis Number	Correct Diagnosis Percentage	Incorrect or Laparotomy Number	Incorrect or Laparotomy Percentage
Intrahepatic (175)	153	87.4	22	12.6
Calculus (152)	147	96.7	3	1.9
Carcinoma of pancreas (63)	57	90.4	3	4.8
Biliary carcinoma (15)	13	86.6	1	6.6
Stricture (7)	6	85.7	0	0

* There were 2 cases of calculus, 3 cases of carcinoma of the pancreas, 1 case of carcinoma of the biliary tract and 1 case of stricture, in which another extrahepatic lesion was selected, accounting for the failure of some groups to total 100 per cent.

In 175 cases of intrahepatic jaundice, the diagnosis was correct in 153 (87.4 per cent). If this group were further broken down it would be found that as a rule the cases of infectious hepatitis and portal cirrhosis were rather readily diagnosed; while in the group of dystrophies, where bizarre clinical pictures were likely to occur, more errors were made.

In 152 cases of stone in the common duct, the correct diagnosis was made in 147 (96.7 per cent). This lesion usually produces a characteristic clinical picture. In this group typical biliary colic occurred in 84.9 per cent, pain of moderate intensity in 9.2 per cent, while there were 5.9 per cent of so-called silent stones. Moreover, 76.9 per cent of patients gave a history of one or more previous episodes of colic, and, of these episodes, 36.7 per cent were associated with jaundice.

In 63 cases of carcinoma of the pancreas or ampulla, a surprisingly high rate of accuracy occurred, 57 cases, or 90.4 per cent, being diagnosed correctly. Again the clinical picture was of primary value. It might be mentioned that in contradistinction to recent reviews, the majority (58.7 per cent) of patients presented the picture of painless, progressive jaundice. Pain of varying degree was present in 41.3 per cent of patients. Of these, it was severe, simulating biliary colic, in 7.9 per cent; in 17.5 per cent there was moderate pain; in 15.9 per cent distress alone was described. In 7 patients (26.9 per cent) with pain, there was radiation through to the back, "boring" in nature.

In 15 cases of carcinoma of the biliary tract arising elsewhere than the pancreas or ampulla, such as carcinoma of the bile ducts, carcinoma of the gallbladder and metastatic carcinoma, the lesion was designated malignant in 13 (86.6 per cent), being called either carcinoma of the pancreas or broadly "biliary tract carcinoma." In 80 per cent of these it is significant that pain was absent, and the course was progressive. And if these cases are added to the group of carcinoma of the pancreas and ampulla, it is found that there was no pain in 64 per cent of patients with malignant obstruction.

In the 7 cases of stricture of the common bile duct the extrahepatic nature of the lesion was recognized, although in 1 the diagnosis of stone in the common duct was made.

So, of all cases of intrahepatic jaundice (175), the diagnosis was correct with no need for laparotomy in 153 (87.4 per cent). Surgical intervention was necessary in 19 cases (10.8 per cent), while 3 patients (1.8 per cent) died with acute necrosis.

If all cases of extrahepatic jaundice (237) are considered as a group, the diagnosis was correct (although a wrong lesion was selected in 7 cases) in 230 (97 per cent) and erroneous in 3 (3 per cent).

D. Analysis of Erroneous Diagnoses.—The erroneous diagnoses between intrahepatic jaundice and extrahepatic jaundice are listed in table 5.

TABLE 5.—*Sixteen Incorrect Diagnoses in Four Hundred and Twelve Cases*

Number	Original Diagnosis	Final Diagnosis
2	Undiagnosed	Intrahepatic jaundice
7	Calculus	Intrahepatic jaundice
3	Intrahepatic jaundice	Calculus
2	Intrahepatic jaundice	Carcinoma of pancreas
1	"Unexplained jaundice"	Carcinoma of pancreas
1	"Unexplained jaundice"	Biliary carcinoma

The most frequent error was that of diagnosing intrahepatic jaundice as stone in the common duct. This occurred in 7 patients, each of whom was submitted to operation; the final diagnosis was then established. These patients had pain of either severe or moderate intensity; several had chills, and all were in middle life or beyond. This error becomes less important in view of the advances in preoperative and postoperative care (selection of anesthetic agent, use of protective diet, administration of menadione and adequate fluids and blood).

The most serious error was that of diagnosing 5 extrahepatic lesions such as stone in the common duct and carcinoma of the pancreas as intrahepatic jaundice. In addition there were 2 cases of "unexplained jaundice" in which laparotomy was recommended. In these 7 cases error involved the life of the patient. Fortunately, despite clinical and laboratory evidence which favored the diagnosis of intrahepatic jaundice, surgical exploration was urged, and either curative or palliative measures were attempted.

E. Need for Surgical Exploration.—When this series of 412 patients is considered from the point of view of need for exploratory laparotomy, it is found that (exclusive of the patients dying within a few days following admission) there were 26 cases in which operation was required before a conclusive diagnosis between intrahepatic jaundice and extrahepatic jaundice could be established, or 6.3 per cent of patients, as shown in table 6.

TABLE 6.—*Need for Laparotomy*

Number of Cases	Final Diagnosis
19	Intrahepatic jaundice
3	Stone in common duct
3	Carcinoma of pancreas
1	Biliary carcinoma
26 Cases, or 6.3%	

In 13 of these cases the diagnosis had not been made or was erroneous.

In 13 the diagnosis was intrahepatic jaundice, but operation was deemed necessary to exclude a possible extrahepatic lesion such as stone or new growth. In this group of patients the jaundice was either prolonged or recurrent; pain was absent or slight, and the presence of a "silent" stone in the common duct could not be excluded with security.

As has been already noted, although the group with intrahepatic jaundice (19 cases) constitutes the more frequent problem, it is the group with extrahepatic lesions (7 cases) that is the more important from the point of view of life.

F. The Erroneous Diagnoses as a Group.—Analysis of the records of those patients in whom erroneous diagnoses were made reveals that 14 of the 16 patients were 40 years of age and older, with unusual clinical pictures as well as misleading results from laboratory procedures. Either the course was prolonged or the jaundice recurrent. Of the 2 patients younger than 40 years, one had a stone in the common duct and the other carcinoma of the head of the pancreas.

COMMENT

Although much progress has been made toward understanding the mechanisms of jaundice resulting from disease of the pancreobiliary tract, at the present state of our knowledge it will serve the best interests of the patient to employ a classification that has clinical value. The use of the terms intrahepatic jaundice and extrahepatic jaundice implies the ultimate problem of the jaundiced patient—the question of the need for operation—for one is a medical disease, while the other has surgical implications.

Fortunately, in the majority of patients a correct diagnosis will be arrived at through evaluation of the clinical picture. Recently the significance of such factors as age, sex, duration and depth of jaundice, pain, chills and fever, history of previous attacks, digestive symptoms, use of alcohol and exposure to other hepatotoxins, splenomegaly, palpable gallbladder, angioma, ascites and color of the stool was reemphasized.[1] It was noted that the clinical picture is most reliable in cases of stone in the common duct, infectious hepatitis in younger age groups and portal cirrhosis. Its value is somewhat less in carcinoma involving the biliary tract, while it appears least reliable in various of the hepatic dystrophies. As is well known, the symptom pain alone is exceedingly valuable. However, while 94 per cent of patients with stone in the common duct had pain of some degree, it is the 6 per cent of patients with painless jaundice who make differential diagnosis difficult. Evaluation of the other clinical factors reveals similar variations which increase the difficulty of diagnosis in the individual patient.

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Furthermore, in reviewing the present series of jaundiced patients, the limitations of laboratory procedures were again evident. For example, 35 per cent of patients with carcinoma of the pancreas had incomplete obstruction as indicated by brown stools and the presence of urobilinogen in the urine, a surprisingly high figure. Normal protein levels were present in 14.7 per cent of patients with portal cirrhosis, while abnormal values were found in 7.6 per cent of patients with neoplastic obstruction. The prothrombin response to menadione was good in 37.8 per cent of cases of intrahepatic disease and poor in 18 per cent of cases of extrahepatic obstruction. The result of the cephalin-cholesterol flocculation test was negative in 19.5 per cent of cases of intrahepatic lesions and 3 to 4 plus in 3 per cent of cases with extrahepatic obstruction. The limitations of hepatic function tests as well as the factors which restrict their value are well known.[2] Unless the results are interpreted by the clinician in the light of the clinical picture, they may lose what value they possess. Hepatic function tests may be used to support a clinical impression but not to make a diagnosis.

As a result of these discrepancies, present both in the clinical picture and in the results of the usual laboratory aids, an accurate differentiation between intrahepatic and extrahepatic jaundice will be exceedingly difficult in a small number of cases. Certainly a better understanding of the clinical entity known variously as intrahepatic obstructive jaundice [3] or cholangiolitic hepatitis,[4] in which intrahepatic disease is associated with obstructive features, will help to resolve a portion of this difficult group of cases. However, if surgically remediable extrahepatic lesions are not to be overlooked, laparotomy must be performed in those patients in whom there is reasonable doubt as to the nature and site of the lesion producing the jaundice. In the present series of 412 patients there were 26 instances in which operation was required because of uncertainty of diagnosis.

CONCLUSION

A study was made of the records of 412 patients admitted to a general hospital with the presenting sign of jaundice. In approximately 90 per cent of cases the correct diagnosis was made through evaluation of the clinical picture. In the majority of instances the results of the usual laboratory procedures supported the clinical impression. However, there remained a small group of patients of middle age and beyond in whom the clinical picture was atypical, the jaundice prolonged or recurrent and the laboratory evidence inconclusive. Exploratory laparotomy was necessary in these patients because of insecurity of diagnosis and in order to avoid overlooking a possible extrahepatic lesion susceptible to surgical attack.

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EFFICACY OF LIPOTROPIC SUBSTANCES IN TREATMENT OF CIRRHOSIS OF LIVER

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Chicago

The effectiveness of choline in removing fat from the liver was first described fifteen years ago by Best and his co-workers.[1] Shortly thereafter other substances were found to have similar lipotropic activity, among them being casein,[2] an amino acid (methionine) [3] and yeast.[4] In animal experiments it was demonstrated that choline not only removes fat but also seems to arrest the cirrhotic process.[5]

Encouraged by results of animal experiments which demonstrated the effect of specific lipotropic substances on the production of cirrhosis on the one hand [6] and on the arrest [5b] and prevention of cirrhosis on the other,[7] many clinicians started to apply the physiologic principles learned from these animal experiments to human sufferers of cirrhosis.

This year marked the tenth anniversary of Pátek's first paper on the treatment of cirrhosis by a high protein and high vitamin regimen,[8] a regimen which signified the first methodical approach to the study and management of the cirrhotic patient.

Various workers, shortly thereafter, confirmed Patek's original observation on their patients with cirrhosis. Some of these used strictly Patek's dietary regimen while others modified the procedure as to type of protein, vitamins, etc.[9] In recent years the Patek regimen of cirrhosis patients was further modified by the addition of specific lipotropic substances

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such as choline, choline and cystine, and methionine.[10]

Ten years have passed since the advent of the new *regimen for cirrhotic patients; hence it was thought* timely to compare the results of the different types of treatment of cirrhosis as observed in our clinic.

MATERIAL AND METHOD

During the ten years my associates and I have observed 247 cases of cirrhosis of the liver. These cases were divided into three groups. The first group consisted of 81 patients who were treated between the years of 1937 and 1940. These patients received a routine medical treatment that consisted of a diet high in carbohydrates (350 to 500 Gm.) and low in fat and proteins. Many of them received, additionally, dextrose intravenously in a 5 or 10 per cent solution.

TABLE 1.—*Clinical Data in the Three Groups of Cases of Cirrhosis*

	Patients on High Carbohydrate and Average Fat Diet	Patients on High Caloric, High Protein, High Vitamin and Low Fat Diet	
		Without Specific Supplements	With Methionine or Cystine and Choline Added
Number of patients	81	119	47
Average age	47	50	46
Sex Male	63	90	30
Female	17	29	17
Alcoholic history	63	97	42
Duration of disease Less than 1 yr.	70	84	26
before hospitalization Over 1 yr.	11*	35†	21‡

*One patient had symptoms for five years; 2 for six, and 1 for eight years.

†Two patients had symptoms for five years; 3 for six; 1 for eight; 1 for ten; 1 for fifteen, and 1 for twenty-eight years.

‡Two patients had symptoms for five years and 2 for ten years.

The second group consisted of 119 patients who were treated from 1941 to date. They received a diet high in carbohydrates (350 to 500 Gm.); high in proteins[11] (100 to 150 Gm.) and low in fat (approximately 50 to 70 Gm.). In addition they received large doses of vitamin supplements.

The third group consisted of 47 patients who were treated since 1943. These patients were on a regimen essentially like those of group 2, but received one type of a lipotropic substance (cystine and choline[12] in doses of 3 Gm. [25 patients], 3 Gm. of choline[12] alone [12 patients] or 3 to 5 Gm. of methionine[12] daily [10 patients]).

The patients in all three groups represented on the whole a similar class of persons as is usually seen in a charity hospital. The average age and sex distribution was fairly close in all three groups, although there was a definitely higher incidence of cases among females in the past few years. The duration of the disease prior to entrance was also within similar time ranges, varying usually from weeks to months (table 1). There was, however, a small percentage of patients in each group in whom symptoms similar to the ones presenting themselves at entrance had been present, intermittently or constantly, for one or more years previously. (8.6 per cent, 14.2 per cent and 21.2 per cent, respectively.) In some patients a history of previous disease of the biliary tract with or without jaundice was obtained (in 4.9 per cent, 15.5 and 8.5 per cent of the three groups, respectively). A history of ingestion of alcoholic beverages was obtained in the majority of cases, with the percentages rising in recent years.

The physical findings on which the diagnosis of cirrhosis was made on initial examination presented themselves fairly comparably in all three groups also. Thus, the incidence of large livers, jaundice, splenomegaly and ascites was rather similar (table 2).

TABLE 2.—*Percentage of Abnormal Physical Findings in the Three Groups of Patients with Cirrhosis*

	Patients on High Carbohydrate and Average Fat Diet	Patients on High Caloric, High Protein, High Vitamin and Low Fat Diet	
		Without Specific Supplements	With Methionine or Cystine and Choline Added
Number of patients	81	119	47
Jaundice	77.5	63.8	70.2
Ascites only	15.0	20	14.7
Enlarged liver only	22.5	31.1	25.1
Ascites and large liver	56.2	45.3	60.0
Splenomegaly	17.5	12.6	27.6

All patients had a battery of hepatic function tests performed at the start of the treatment and at variable intervals (two to four weeks) thereafter.

In 10 patients, 2 of group 2 and 8 of group 3, the clinical observations were checked morphologically by liver biopsies on specimens obtained by aspiration.[13] Of the 8 patients of group 3, 2 received the diet high in protein and vitamin supplements plus methionine as the lipotropic substance while 6 received cystine and choline as the specific factor.

RESULTS

The 81 patients of the first group were under treatment in the hospital from a minimum of seven to a maximum of two hundred and ten days with an average of thirty-seven days. Forty-one of them died some time during this observation period, while 40 recovered sufficiently to leave the hospital; i.e., they had improved regarding either their subjective or objective symptoms or both. Disappearance or decrease of ascites or edema, increase in intervals between paracenteses, disappearance of jaundice, decrease in size of the liver and improvement in the results of the hepatic function tests were considered signs of objective improvement. A better appetite, gain in weight (while not edematous or ascitic) and gain in strength were subjective signs of improvement.

Of the 40 patients who were discharged after the first admission, 26 were not seen thereafter, while 14 (35 per cent) reentered the hospital after an interval of one week to four years. Six of the 14 returned patients died after their second admission to the hospital, which occurred from three weeks to nineteen months after their first discharge from the hospital. Eight of the patients again recovered sufficiently to leave the hospital. Of these, 2 died on subsequent readmissions (one during the third, eight months later, and one during the fourth admission, nine months later). The remaining 6 patients were seen at various intervals, until 5 of them became lost also after observation periods ranging from seven months to three and one-half years. One died only recently, after a total observation period of almost ten years.

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[10] (*a*) Russakoff, A. H., and Blumberg, H.: Choline as an Adjuvant to the Dietary Therapy of Cirrhosis of the Liver, Ann. Int. Med. **21:** 848, 1944. (*b*) Broun, G. O., and Muether, R. O.: Treatment of Hepatic Cirrhosis with Choline Chloride and Diet Low in Fat and Cholesterol, J. A. M. A. **118:**1403 (April 18), 1942. (*c*) Rimmerman, A.B.; Schwartz, S. O.; Popper, H., and Steigmann, F.: Dietary Factors in the Treatment of Cirrhosis Without Jaundice, Am. J. Digest. Dis. **11:** 401, 1944. (*d*) Morrison, L. M.: The Response of Cirrhosis of the Liver to an Intensive Combined Therapy, Ann. Int. Med. **24:** 465, 1946. (*e*) Barker, W. H.: The Modern Treatment of Cirrhosis of the Liver, M. Clin. North America, **29:** *273*, 1945. (*f*) Labby, D. H.; Shank, R. E.; Kunkel, H. G., and Hoagland, C. L.: Cirrhosis of the Liver, J. A. M. A. **133:** 1181 (April 19), 1947. (*g*) Beams, A. J.: The Treatment of Cirrhosis of the Liver with Choline and Cystine, J. A. M. A. **130:** 190 (Jan. 26), 1946.

[11] The earlier patients (1941 to 1943) received protein of lactovegetarian origin.

[12] This was provided by Wyeth Incorporated, Philadelphia.

[13] Drs. H. Popper and M. Franklin reported on the histologic findings and Dr. D. D. Kozoll performed the biopsies.

The 119 patients comprising the second group were under care in the hospital from a minimum of one day to a maximum of 150 days. Of the 78 patients of subgroup (a), who were observed in the earlier part of this study (1941 to 1943), 25, or 32 per cent, died during the first hospital stay, while 53, or 68 per cent, recovered sufficiently to leave the hospital. Of these 53 patients 15, or 28 per cent, returned subsequently for hospitalization one to four times during the following year (three weeks to one year). Nine (60 per cent) of these 15 patients died during one of these readmissions to the hospital. The remaining 44 patients of this earlier group gradually ceased coming to the clinic, so that at present the fate of only 1 patient is known, who happens to be well and working hard nearly four years after his first admission to the hospital.

Table 3.—*Morbidity and Mortality of the Three Groups of Patients with Cirrhosis*

Group	Treatment (Diet)	Number of Cases	Initial Hospitalizations: Number		Repeat Hospitalizations: Number			Duration of Observation	Cases still Observed	Cases Lost	Total Died	Percentage Who Died
			Died	Recovered	Returned	Died	Recovered					
1	High carbohydrate	81	41	40	14	9	5	Up to 4 yr.	0	31	50	61.7
II A.	High protein (lactovegetarian), low fat, vitamin supplements	78	25	53	15	9	6	Up to 6 yr.	1	43	34	43.5*
B.	High protein (meat), low fat, vitamin supplements	41	18	23	8	4	4	Up to 3 yr.	6	13	22	53.6*
III	High protein, low fat, vitamin supplements and lipotropic substances	47	6	41	20	10	10	Up to 3 yr.	11	20†	16	34

*The combined mortality for group 2 is 47 per cent.

†Two patients are in a convalescent home.

Of the 41 patients of subgroup (*b*), who were treated since 1944, 18 (44 per cent) died during the first stay in the hospital, while 23 recovered sufficiently to leave the hospital. Eight (34.8 per cent) of these 23 patients have returned one or more times for hospitalization during a period from one month to one year. Four of them died during one of these readmissions (2 during the first and 1 each during the second and third hospital stay, respectively). One is at present in the hospital. Of the remaining 18 patients, 5 come regularly to the clinic and show definite arrest of their condition, with slow but gradual improvement. The other 13 patients have not been seen at the clinic or in the hospital since their discharge—a period varying from four to fifteen months.

The 47 patients of the third group who received lipotropic substance in addition to their basic diet were, on the average, under hospital observation for a slightly longer time because most of them received the methionine or cystine and choline for at least four weeks before repeat studies were made on them. Of these 47 patients 6 (12.7 per cent) died during the first period of hospitalization, while 41, or 87.2 per cent, recovered sufficiently to leave the hospital. Of the 41 patients, 20, or 48.7 per cent, were readmitted at variable intervals to the hospital, 10 of them dying during these later admissions. Of the 31 surviving patients of this group, 2 are in a convalescent home, 18 are lost and the remaining 11 are under observation. Of these latter patients, 6 have been able to return to their previous occupation, while the remaining 5, although improved to various degrees both subjectively and objectively, still are below par, being able to perform only part of their previous tasks (table 3).

The 10 patients who were checked morphologically revealed disappearance of fat from the liver, while fibrosis, whenever present, was apparently unaffected.

COMMENT

The evaluation of any therapy of cirrhosis must take into consideration spontaneous remissions and irreversible stages of the disease. Nevertheless, there is a difference in results between the ancient high carbohydrate and the more recent high protein treatment as expressed in the lowering of mortality, decrease in morbidity and almost complete recovery, for the present at least, in a higher percentage of cases. It appeared, moreover, that the addition of specific lipotropic substances to the high protein dietary regimen has further improved the outlook of patients with cirrhosis.

The reports from various clinics in different geographic locations have been uniformly enthusiastic about the results of specific therapy (choline, methionine, choline and cystine) in cirrhosis.[10] Most workers, however, including Patek himself,[14] called attention to apparent therapeutic failures. It seems that the results are more favorable in the presence of a large liver (which indicates mainly fatty infiltration rather than fibrosis) than of a small one.[10g] Furthermore, the presence of ascites decreases the therapeutic effects, which, too, would suggest that pronounced fibrosis in the liver as manifested by portal hypertension is not likely to be influenced by these substances.[15]

Because of the comparatively small number of patients (47) that received lipotropic substances, no attempt has been made to break down this group into smaller divisions according to the lipotropic substances which they received.

From these observations and from special studies on individual patients it appears to us that one is not justified in concluding that all the specific lipotropic substances are identical in their effect, or that the only effect of these substances, especially methionine, is lipotropic. I can just reemphasize the fact that on the basis of the still comparatively short period of observation in a small series of cases, the addition of lipotropic substances (choline alone, choline and cystine, or methionine) enhances the beneficial effects of the high protein and high vitamin regimen. Moreover, while the clinical finding of decrease of the size of the liver and the morphologic finding of disappearance of fat from the liver after administration of these substances suggests a primary action of fat removal, many patients show other beneficial results during this regimen which apparently are not solely due to removal of fat. While some believe that fatty infiltration is the sole source in the production of cirrhosis,[10a] there are others[16] who do not feel that deposition of fat deserves absolute priority in it. The latter may be somewhat supported by our own observation that enlarged livers were found both in the patients who responded and those who did not respond to lipotropic substances. Thus, of the patients who died during their treatment with lipotropic substances, 83.2 per cent had enlarged livers, while of those who recovered, 78.8 per cent had hepatomegaly.

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[14] Patek, A. J., Jr.: The Dietary Treatment of Laennec's Cirrhosis, New York State J. Med. 46:2519, 1946.

[15] Fleming and Snell.[9] Morrison.[10d]

The sooner patients with cirrhosis receive intensive therapy, the better is their chance of improvement and eventual recovery. For the time being, however, we do not feel that our observations justify the conclusion that this recovery is mainly due to the fact that in the early stages the liver is primarily fatty and not fibrotic. It is nevertheless reasonable to conclude that on the basis of the known activity of lipotropic substances, patients who come under treatment before fibrosis has set in may have much better results from therapy with lipotropic substances than those who are seen later in the course of the disease when fibrosis has developed.

The patients in whom intensive therapy with lipotropic substances failed to result in recovery are obviously of great interest. The question arises whether this was due to the advanced stage of the condition or to other inherent difficulties of any therapy, or whether these cases possibly represented a different pathologic entity. From the observation of our small group of patients receiving lipotropic substances it can be stated that, if advanced stage is measured by duration of symptoms prior to entrance into the hospital, then it did not govern the response or nonresponse to treatment. Patients with symptoms of years' duration did better in some instances than those with symptoms of only several weeks. Thus of the 6 patients who died during their first hospitalization, 5 had symptoms of less than six months. However, if advanced stage is measured by the presence or absence of ascites, then it does influence the response to therapy.

Finally, failure of lipotropic therapy in cases of cirrhosis may be due to the underlying difference in the causal factors. While it is generally accepted that cirrhosis of the liver is a disease produced by deficient intake of various substances and that alcoholism plays only a conditioning role in many instances, it is nevertheless agreed that these factors are not the only ones leading to production of cirrhosis. Cirrhosis may occur in patients who do not drink, have no history of deficient food intake, but who have had acute hepatitis at some time in the past.[17] It is not unlikely, therefore, that patients with cirrhosis who do not respond to the present intensive therapy with specific lipotropic substances may represent a type of cirrhosis not on a deficiency basis. It is therefore believed that the histopathologist will have to differentiate the types of cirrhosis more specifically before it will be possible to evaluate more definitely the efficacy of the lipotropic substances in the treatment of cirrhosis.

SUMMARY AND CONCLUSION

Two hundred and forty-seven cases of cirrhosis were observed during a period of ten years on three different therapeutic regimens.

The most recently used regimen, which consisted of a diet high in protein, high in vitamins, high in carbohydrates and low in fats supplemented by specific lipotropic substances (choline, choline and cystine, and methionine) proved to be the most efficacious, as evidenced by lower mortality and morbidity rates. There was also a higher percentage of recoveries under this regimen.

The results of therapy in all groups seemed to be definitely influenced by the presence or absence of ascites, little by the duration of the disease, as obtained from the history.

While basically the effect of therapy with lipotropic substances is considered to depend on the activity of these substances regarding fat removal, clinically one notices additional beneficial results.

Removal of fat from the liver, as noted morphologically in a few cases by liver biopsies and in many others by decrease in the size of the liver, is not always associated with other objective and subjective signs of improvement.

There exists a significant number of patients with cirrhosis who do not respond to lipotropic therapy. In many of these there seems to be some other underlying cause for the production of the cirrhosis than the previously generally accepted cause of nutritional deficiency conditioned by alcoholism.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MCMICHAEL; LIPP, LENZNER AND AARON; POPPER AND FRANKLIN, AND STEIGMANN

Dr. Cecil J. Watson, Minneapolis: In approaching this problem for a number of years now, I have found help in starting on a fundamental basis, namely, the classification of these into two main types of jaundice: retention jaundice, characterized by an accumulation in the blood of delayed or indirect reacting serum bilirubin, and by the absence of bilirubin in the urine—and I should like to pause for just a moment to say I think it would be well if we could abandon the use of the term "direct" in relation to the van den Bergh reaction. It is misleading because it includes both "prompt" and "delayed," which, in my opinion, have quite different significance. I believe it is better to speak simply, of the prompt and the total bilirubin, the prompt being that reacting with the diazo reagent within one minute, the total that obtained by the method of Malloy and Evelyn. I can testify to everything that Dr. McMichael said about the value of liver biopsy generally. It has been of the greatest help to my associates and me. I am concerned, however, with the enthusiasm with which liver biopsy has been taken up in the country. I understand, rather through the grapevine, that some institutions have already abandoned it because of the mortality. I understand, too, that some persons are carrying out liver biopsy as an ambulatory procedure. I think that this is most unfortunate and will undoubtedly lead to trouble. We have not been willing to accept the occasional mortality which, so far as we can determine, is likely to occur with the posterior aspiration method as commonly used, and we believe the lateral intercostal method is also relatively dangerous because of the difficulty of getting at the area in case of a hemorrhage. For direct biopsy we have used the Silverman needle and insisted on there being a large and easily palpable liver, which, we were sure, was immediately beneath the abdominal wall. The prothrombin time should be normal or nearly so. In cases in which the liver is less evident, the biopsy has been done under peritoneoscopic control, a long Silverman needle being inserted into the liver through a subcostal approach, under direct visualization.

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[16] György, P.: Personal communication to the author.

[17] Bloomfield, A. L.: Natural History of Chronic Hepatitis (Cirrhosis of Liver), Am. J. M. Sc. **195**: 429, 1938.

Dr. Theodore Gillman, Johannesburg, South Africa: I wish to thank you for the opportunity of presenting some of the results of liver biopsy studies which my associates and I have conducted in South Africa. The technic which we now use is a modification of that introduced by Iversen and Roholm. Preliminary experimental work in our usual laboratory animal, the baboon, revealed that the type of instrument as well as the approach used by the Danish workers was fraught with a number of difficulties and certainly with dangers. Careful examination of the anatomy of the circulation in the liver, particularly of the venous sinuses which drain into the large hepatic veins, was such as to make the lateral approach less desirable than the anterior approach. We modified the needle considerably, bearing in mind the warning which Professor McMichael had given about carrying out the biopsy with great speed. The main object of our modification in approach and in the construction of the instrument was to speed up the procedure in such a way that it was all over in a few seconds. We have now carried out about a thousand liver biopsies and thus far have contributed to the death of 1 patient, who had a huge tuberculotic liver, over the surface of which ran an extremely large vein. Even in this case the death could have been avoided if adequate surgical facilities had been available at the time. This method in the first place has provided us with a tremendous weapon in understanding pathologic changes in the liver in patients with known hepatic disease; perhaps equally important, it has permitted us to study the reactions of the liver in diseases in which pathologic changes of the liver are not initially expected. It is to this second type of problem that our studies have been mainly directed. We found a high incidence of hepatic disease, something like 97 per cent, in pellagra and allied forms of chronic malnutrition. We found that many substances, acclaimed as useful in the treatment and prevention of disease of the liver experimentally, were unsatisfactory in treating human hepatic disease. It soon became clear that once the liver had become damaged, other organs were also affected, including the nervous system, the endocrines and the alimentary canal, and that these other organs could contribute to the progress of the disease no less than did the hepatic disease. At that stage, it did not seem entirely satisfactory to direct attention solely to the existing hepatic disease. This led us to seek for therapeutic methods not aimed directly at the liver.

Dr. David Adlersberg, New York: Among other metabolic changes encountered in disease of the liver, one finds severe alterations of the metabolism of water. Parenchymal hepatic damage, especially in severe disease, is associated with retention in the tissues of orally ingested water ("hepatic oliguria"), while the stage of improvement and repair is often characterized by polyuria and removal of excessive water from the tissues. These changes of water metabolism may be used for diagnostic purposes. For those interested in a simple and practical hepatic function test which requires no laboratory and can be easily performed in the patient's home, the water tolerance test is recommended. Fasting patients are given 1,500 cc. of tap water within twenty to thirty minutes. Specimens of urine are then obtained every thirty minutes for five hours; the volume and specific gravity of each specimen are measured. In the absence of other factors influencing water metabolism —cardiac or renal disease, fever, ascites or visible edema— pronounced retention of water in the water tolerance test indicates hepatic damage (details may be found in: Adlersberg, D., and Fox, C. L., Jr.: *Ann. Int. Med.* 19:642 [Oct.] 1943). These observations have been recently confirmed and amplified by Dr. Hoagland and his group at the Hospital of the Rockefeller Institute in New York. The classification of hepatitis according to the severity of the disease, as used by Professor McMichael (grades A, B, C and D) will be of great help in future studies. My associates and I tried to employ a simpler subdivision of hepatitis in the daily clinical routine in "mild, moderately severe, severe and very severe." I was interested in Professor McMichael's remarks regarding the hippuric acid test. I agree with him that it is too sensitive for clinical purposes. I stressed this fact in my studies of hepatic function about ten years ago.

Dr. John McMichael, London, England: I have listened with great interest. The work that is going on is bound, sooner or later, to take us a great deal further than we stand today. The work which Dr. Gillman is doing in South Africa I think yields an enormous and unique field for studies on the nutritional type of hepatic disorder. I wish he had been able to tell more than he did in the time at his disposal. His experience has been astonishing in the nutritional field of disease of the liver. I am glad to hear him sound a warning about the tendency to use some of the amino acid and liver-trophic substances rather loosely, as though these were panaceas for disease of the liver. My experience in using these substances has been limited, but certainly we have had enough in the way of negative answers to make us extremely cautious; however, it is important that we should all continue to produce as much evidence as we can, and sooner or later we will get these problems sifted out.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

Austin Smith, M.D., *Secretary.*

PENICILLIN (See New and Nonofficial Remedies, 1947, p. 144).

The following additional dosage form has been accepted:

Abbott Laboratories, North Chicago, Ill.

Penicillin Sodium: 1,000,000 unit vials.

Premo Pharmaceutical Co., Inc., New York

Crystalline Penicillin G Sodium in Oil and Wax: 300,000 units per cubic centimeter, 10 cc. vials. Penicillin G sodium suspended in sesame oil containing 4.8 per cent (W/V) white wax, U. S. P.

METHIODAL SODIUM (See New and Nonofficial Remedies, 1947, p. 290).

The following dosage form has been accepted:

Winthrop-Stearns, Inc., New York

Solution Skiodan 40 per Cent: 100 cc. bottles.

Solution Skiodan 20 per Cent: 50 cc. bottles.

NITROFURAZONE (See New and Nonofficial Remedies, 1947, p. 81).

The following additional dosage form has been accepted:

Eaton Laboratories, Inc., Norwich, N. Y.

Solution Furacin 1: 500: 480 cc. bottles. Each 100 cc. contains nitrofurazone 0.2 Gm. and polyethylene glycol of mono-iso-octyl phenyl ether 0.3 Gm. in a mixture of polyethylene glycol 300, 32.5 Gm.; "carbowax 1540," 32.5 Gm., and water.

DIGITOXIN (See New and Nonofficial Remedies, 1947, p. 250).

The following additional dosage form has been accepted:

Wyeth Incorporated, Philadelphia

Solution Purodigin: 1 cc. Tubex (U. S. Trademark 406632. Each cubic centimeter contains 0.2 mg. of digitoxin in 40 per cent alcohol solution.

U. S. trademark 411,271.

CORRECTION

The monograph on Isobornyl Thiocyanoacetate-Technical which appeared under New and Nonofficial Remedies in THE JOURNAL, April 24, page 1099, should be corrected to read as follows:

Tests and Standards.—

Paragraph 1, sentence 3, "The refractive index... is 1.512."

Paragraphs 2 and 4, sentence 1, "Add...2*N* alcoholic potassium hydroxide."

Paragraph 2, sentence 3, "Acidify...with diluted sulfuric acid...."

Paragraph 5, sentence 1, "Dissolve 10 Gm...in 25 cc. of saturated methanolic potassium hydroxide.."

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 15, 1948

EDITORIAL ANNOUNCEMENT

The absence of the compositors from their work continues. This issue of THE JOURNAL has been prepared in part by the use of Vari-Typer machines.

STREAMLINING HEALTH EXAMINATIONS

Physicians and patients have been aware for many years of the importance of periodic examinations. Early diagnosis and the application of the " stitch in time" work wonders in tuberculosis, cancer, diabetes, heart disease, hypertension and most other chronic diseases. In most physicians' offices health examinations take time, frequently one or two hours. Few patients could bear the financial burden of the time taken. If the physician habitually contributed the extra time this eventually would become a burden.

Now the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association[1] suggest (*a*) that health examinations of school children be done routinely at this healthiest period of their lives only every three years; (*b*) that the parent accept the responsibility for furnishing the health history; (*c*) that the teacher take the responsibility for such tests as height, weight, vision and hearing; (*d*) that the parent or nurse be present at the examination in order to take prompt steps to follow up the discovery of defects with remedial action, and (*e*) that the physician devote only fifteen minutes of his time to making those tests and observations which obviously demand medical experience and judgment.

Suggestions for streamlining the more complex adult examination have also been made. White and Geschickter[2] have analyzed the approximately two thousand currently recognized disease entities and find that two hundred diseases are responsible for 98 per cent of the illness in the United States. They also find that sixteen common symptoms, twenty-three leading physical abnormalities and six essential laboratory observations will serve as keys for the differential diagnosis of these two hundred diseases. With the history and certain routine parts of the examination carefully completed by a well trained technical assistant and with the laboratory tests performed by the technician, the actual time demanded from the physician to determine the presence or absence of the twenty-three leading physical abnormalities and to summarize the result is estimated to average not more than ten to thirty minutes.

These efforts to " streamline" health examinations must not be confused with the recent recommendations of the Subcommittee on Physical Fitness of the Baruch Committee on Physical Medicine,[3] which call for an examination not only establishing the presence or absence of abnormalities but also the patient's fitness for work and play activities as well as his " will to do." Nor should these efforts be confused with the " Physical Profile Serial"[4] used by the British and Canadian armed services and suggested to leaders of our armed services for functionally classifying our manpower so that recruits could be called up hurriedly in classes.

Since 1923 the American Medical Association has sponsored the movement to popularize *periodic health examinations.*[5] These new reports merit careful study for their contribution to this important movement.

EVOLUTION OF MOLD ARTHROPLASTY OF THE HIP JOINT

Three main reasons, according to Smith-Petersen,[1] have been responsible for limited success in arthroplasty of the hip joint: surgical approaches were traumatic and inadequate; the joint created was defective because of lack of proper instruments, and the underlying principle of interposing a perishable barrier between imperfectly shaped joint surfaces was not sound. The supra-articular, subperiosteal approach to the hip developed by Smith-Petersen improved the exposure of the head and neck of the femur, and the excision of the anterior superior wall of the acetabulum permitted access to the other side of the joint. A fortuitous circumstance suggested to the author the idea of the mold. In 1923 a piece of glass which had been embedded for a year was removed from a patient's back. The glass was surrounded by a minimal amount of fibrous tissue, lined by a glistening synovial sac that contained a few drops of clear yellow fluid. This benign reaction to an inert foreign body suggested that here was a process of repair which might be applied to arthroplasty.

---

[1] Smiley, D. F., and Hein, F. V.: The Health Appraisal of School Children, Report *of the Joint Committee on* Health Problems in Education of the National Education Association and the American Medical Association, Chicago, 1948.

[2] White, B. V., and Geschickter, C. F.: Diagnosis in Daily Practice Philadelphia, J. B. Lippincott Company, 1947.

[3] Report of the Subcommittee on Physical Fitness to the Baruch Committee on Physical Medicine, *New York.*

[4] Physical Profile Serial, supplement to Standards of Physical Examination *During Mobilization,* War Department, Mobilization Regulations 1-9, May 22, 1944.

[5] Periodic Health Examination: A Manual for Physicians, Chicago, American Medical Association, 1940.

[1] Smith-Petersen, M. N.: Evolution of Mould Arthroplasty of the Hip Joint, J. Bone & Joint Surg. *30 B:*59 (Feb.) *1948.*

The idea gradually developed that a mold of some inert material interposed between newly shaped surfaces of the head of the femur and the acetabulum would guide nature's repair so that defects would be eliminated. The first material used was glass. Some of the glass molds broke after having been in place for a short time. When the pieces were removed the acetabulum and head of the femur were found to be covered by a firm, glistening lining, thus furnishing evidence that the principle of guiding nature's repair by means of a mold was sound. Smith-Petersen next resorted to "pyrex" molds with much the same results. In 1938 he began to use "vitallium" in his hip arthroplasties. Since then over five hundred hips have been operated on by this method at Massachusetts General Hospital; eighty of these operations were bilateral.

Law[2] has now reported that 80 per cent of late results were satisfactory to both patient and surgeon in 150 cases. Striking features were the relative painlessness, smooth movement of the hip joint, progressive improvement in function and reformation of the joint lines as seen roentgenographically. Function after arthroplasty for traumatic and degenerative arthritis approaches that of the normal hip joint much more closely than in cases of infected and rheumatoid arthritis. There is a complete absence of low back symptoms or postural difficulties. The operative mortality rate in this series was nil. During the six year period only 1 patient died as the result of a complication of the arthroplasty. Secondary operative revisions are often necessary, particularly in defective and rheumatoid arthritis. According to Smith-Petersen, this is the first time that the principle of the mold, the principle of guiding the repair of nature for the purpose of recreating a destroyed or damaged structure, has been applied to surgery.

Current Comment

EARLIER DISCOVERY AND TREATMENT OF DIABETES MELLITUS

The number of latent and undiscovered cases of diabetes in the United States is much larger than formerly supposed. The United States Public Health Service about two years ago established a Diabetes Office in Boston; their survey of 3,500 citizens of Oxford, Mass., in 1946 disclosed that 40 cases of diabetes were known to the physicians in the town but that there were 30 more entirely unrecognized cases. In this country there are at least 1,000,000 undiscovered cases of diabetes and also a large number of others in persons whose diabetes is labeled mild and who therefore are under little careful treatment. The result of the lack of treatment during several years in this middle-aged group of persons with mild cases of the disease is that later they appear with gangrene and retinitis but too late for remedy. The American Diabetes Association, composed of about a thousand physicians interested in diabetes, has appointed a committee to consider means of discovering these latent cases.

They have established a journal for the public called *A.D.A. Forecast*. This committee is also considering a "Diabetic Week" for some time in November or December. The suggestion has been made that centers be established, to be manned by physicians, in which tests of blood and urine could be performed on any person but especially on the relatives of diabetic patients. If diabetes was discovered the patient would be sent to his own physician for further treatment. Discovery of these patients with untreated diabetes is definitely a medical responsibility.

ASCORBIC ACID CONTENT OF STRAWBERRIES

Strawberries are an important source of ascorbic acid, vitamin C, although the vitamin content varies widely between varieties and even within the varieties. Much of the variation is due to heredity and environment. Investigators[1] in the U. S. Department of Agriculture recently tested a sufficient number of samples to permit statistical analysis of the data as to the nutritional value of the berries, the effects of shading the plants and the stage of maturity. Prominent varieties grown in the South—Blakemore, Klondike, Klonmore, Massey and Missionary—averaged about 50 mg. of ascorbic acid per 100 Gm. of berries for about 50 per cent of the national crop. The ascorbic acid content of many varieties grown in the Northeast averaged 60 to 65 mg. for 30 per cent of the national crop. In the Pacific Northwest Corvallis, Marshall and Red Heart varieties are high in ascorbic acid, averaging between 75 and 80 mg. for about 12 per cent of the national crop. The average for the entire crop of the country is said to be about 60 mg. per 100 Gm. of berries. Among the commercial varieties, a high ascorbic acid content was found in Catskill, Corvallis, Gandy, Fairmore, Fairpeake, Marshall, Red Heart and Tennessee Beauty. The environment that produces the best flavor includes high light intensity, warm days, cool nights and long daily light periods. High ascorbic acid content also is favored by moderately warm days, cool nights and high light intensity. Strawberries grown in the shade contained much less ascorbic acid than those exposed to normal sunlight. Half-red berries held for one or two days until finally red increased in ascorbic acid content, but not as much as did those ripened on the plant. These investigators concluded that the ascorbic acid content of strawberries in the United States probably averages about 60 mg. per 100 Gm. They believe that by breeding the average vitamin content could be increased up to 80 mg. or more.

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[2] Law, W. A.: Post-Operative Study of Vitallium Mould Arthroplasty of the Hip Joint, J. Bone & Joint Surg. 30 B:76 (Feb.) 1948.

[1] Ezell, Boyce D.; Darrow, George M.: Wilcox, Marguerite S., and Scott, D. H.: Ascorbic Acid Content of Strawberries, Food Research, Vol. 12, November-December, 1947.

NOMENCLATURE OF THE ANTI-Rh TYPING SERUMS

Castle, Wintrobe and Snyder[1] have recently reported the conclusions of the Advisory Review Board which convened at the request of the Surgeon General, U.S. Public Health Service, to consider nomenclature for anti-Rh typing serums. Evidence was presented by eight outstanding producers and users of such serums in the United States. The several discoveries and other considerations leading to the two main systems of nomenclature, i.e., the Wiener system and Fisher-Race system, were thoroughly discussed. The evidence presented indicates that the Fisher-Race nomenclature is much simpler and more easily understandable than the Wiener system. However, final decision was reserved, thus continuing the confusion which surrounds Rh terminology. As there is still confusion in many parts of the world with regard to the differences in the Moss and Jansky classification of blood groups, it seems probable, because of the relatively much greater complexity of, and numbers of genes entering into, the Rh system, that the net result of the present lack of decision will be even more confusing.

The evidence for the decision of the advisory board is summarized as follows:

IN FAVOR OF WIENER'S NOMENCLATURE

1. It has priority, having been proposed by one of the discoverers.
2. It is in use by many clinicicians and research workers and is understood by them.
3. It is used by nearly all the writers on the subject in the Western Hemisphere.
4. No conclusive evidence has been presented against the theory on which it is based.

AGAINST WIENER'S NOMENCLATURE

1. It does not always specify the antigens present in the type name, and it almost never does so in the genotype name.
2. It has changed rapidly from year to year.
3. It is losing followers among the producers and users of serums.
4. It involves complications, both typographic and genetic, of subscripts, superscripts, numbers, primes and other symbols.
5. It involves the somewhat doubtful assumption of multiple antigens produced by single genes.

IN FAVOR OF THE FISHER-RACE NOMENCLATURE

1. It always specifies in both type name and genotype name the individual antigens present.
2. It is in wide usage in England, is gaining in usage in the Western Hemisphere, and hence may become the international standard.
3. It is simple and direct, both typographically and genetically.
4. It conforms to a one to one correspondence between gene and antigen.

AGAINST THE FISHER-RACE NOMENCLATURE

1. It lacks priority.
2. It is based on a genetic hypothesis which is purely theoretic and for which no clear proof exists—a hypothesis no more tenable on genetic grounds than Wiener's hypothesis.

The board reached the following conclusions:

The Board, having carefully considered the above historical development of the two systems of nomenclature and having weighed the arguments in favor of, and opposed to, each system, is forced to the conclusion that for the present a compromise must be made, and both systems must be used on the container labels and package labels. Because the Wiener system has priority and is understood by everyone in the United States concerned with the production and use of anti-Rh serums, the Board recommends that the Wiener terminology appear first on the label followed by the Fisher-Race terminology in parentheses. Typical labels would then appear somewhat as follows:

Anti-Rh Typing Serum (human)
Anti-Rho (Anti-D)
Slide test
Lot No.
Manufacturer
Anti-Rh Typing Serum (human)
Anti-Rho (Anti-C plus D)
——————tube test
Lot No.
Manufacturer
Anti-Hr Typing Serum (human)
Anti-hr′ (Anti-c)
Capillary test
Lot No.
Manufacturer
Anti-Rh Typing Serum (human)
Anti-rh′ (Anti-C)
Slide test
Lot No.
Manufacturer

The package label and literature might contain, in addition to the above, the description of the test by means of which the serum is to be used.

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[1] Castle, W.B.; Wintrobe, M.M., and Snyder, L.H.: Science 107: 27-31 (Jan. 9) 1948.

THE CHICAGO SESSION

AMERICAN MEDICAL ASSOCIATION, NINETY-SEVENTH ANNUAL SESSION
CHICAGO, JUNE 21-25, 1948

OFFICIAL CALL

TO THE OFFICERS, FELLOWS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The ninety-seventh annual session of the American Medical Association will be held in Chicago, June 21-25, 1948.

The House of Delegates will convene at 10 a. m. Monday, June 21. In the House the representation of the various constituent associations for 1947, 1948 and 1949 is as follows:

Alabama	2	Nevada	1
Arizona	1	New Hampshire	1
Arkansas	2	New Jersey	5
California	9	New Mexico	1
Colorado	2	New York	20
Connecticut	3	North Carolina	3
Delaware	1	North Dakota	1
District of Columbia	2	Ohio	7
Florida	2	Oklahoma	2
Georgia	3	Oregon	2
Idaho	1	Pennsylvania	10
Illinois	9	Rhode Island	1
Indiana	4	South Carolina	1
Iowa	3	South Dakota	1
Kansas	2	Tennessee	2
Kentucky	2	Texas	5
Louisiana	2	Utah	1
Maine	1	Vermont	1
Maryland	2	Virginia	2
Massachusetts	6	Washington	2
Michigan	5	West Virginia	2
Minnesota	4	Wisconsin	3
Mississippi	1	Wyoming	1
Missouri	4	Alaska	1
Montana	1	Hawaii	1
Nebraska	2	Isthmian Canal Zone	1
		Puerto Rico	1

The scientific sections of the American Medical Association, the Medical Corps of the Army, the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each.

The Scientific Assembly of the Association will be open with the General Scientific Meetings to be held Monday, June 21, starting at 2 p. m. and continuing throughout the morning and afternoon of Tuesday, June 22. The Inauguration Meeting at which the President will be installed will be held on Tuesday, June 22, starting at 8 p. m. The sections will meet Wednesday, Thursday and Friday, June 23, 24 and 25, as follows:

CONVENING AT 9 A. M.
THE SECTIONS ON

Pediatrics.

Surgery, General and Abdominal.

Ophthalmology.

Experimental Medicine and Therapeutics.

Nervous and Mental Diseases.

Dermatology and Syphilology.

Gastro-Enterology and Proctology.

Radiology.

Miscellaneous Topics:
Session on Allergy;
Session on Diseases of the Chest; Session on Physical Medicine;
Session on History of Medicine.

CONVENING AT 2 P. M.
THE SECTIONS ON

Internal Medicine.

Obstetrics and Gynecology.

Laryngology, Otology and Rhinology.

Pathology and Physiology.

Orthopedic Surgery.

Urology.

Preventive and Industrial Medicine and Public Health.

Anesthesiology.

General Practice of Medicine.

The Registration Bureau, which will be located on the Navy Pier, will be open from 8:30 a.m. until 5:30 p.m. Monday, Tuesday, Wednesday and Thursday, June 21, 22, 23 and 24, and from 8:30 a.m. to 12 noon Friday, June 25.

EDWARD L. BORTZ, President.
ROY W. FOUTS, Speaker, House of Delegates.
GEORGE F. LULL, Secretary.

MEMBERS OF THE HOUSE OF DELEGATES

A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete, as a number of the state associations are yet to hold their meetings at which delegates will be elected. The following is a list of the holdover members of the House of Delegates and of the newly elected members who have been reported to the Secretary in time to be included:

STATE DELEGATES

ALABAMA

A. A. Walker, Birmingham.
Lloyd Noland, Fairfield.

ARIZONA

Jesse D. Hamer, Phoenix.

ARKANSAS

Darmon A. Rhinehart, Little Rock.

CALIFORNIA

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E. Vincent Askey, Los Angeles.
John W. Cline, San Francisco.
Donald Cass, Los Angeles.
Ralph B. Eusden, Long Beach.
Robertson Ward, San Francisco.
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Lowell S. Goin, Los Angeles.
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FLORIDA

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Louis M. Orr II, Orlando.

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Alfred S. Giordano, South Bend.
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Franklin S. Crockett, LaFayette.

IOWA

Gerald V. Caughlan, Council Bluffs.

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NEBRASKA

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NEVADA

Roland W. Stahr, Reno.

NEW HAMPSHIRE

Deering G. Smith, Nashua.

NEW JERSEY

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Thomas K. Lewis, Camden.
Hilton S. Read, Ventnor.
Joseph F. Londrigan, Hoboken.
William F. Costello, Dover.

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Arthur J. Bedell, Albany, N. Y.

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ANESTHESIOLOGY

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Howard E. Griffin, Graham, Texas.

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UNITED STATES NAVY

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CHICAGO—1948

The center of activities of the 1948 Annual Session will be the great Navy Pier, which extends nearly a mile into Lake Michigan from the foot of Grand Avenue and is less than a mile from the headquarters office of the Association. The entire pier is being developed into halls and exhibit rooms so that a considerable number of the scientific sessions, the registration bureau and the complete scientific and technical exhibits will be housed on the pier. The pier is 292 feet wide and is capable of accommodating thousands of persons comfortably for convention purposes.

The visitor to the Annual Session will enter the pier, which is easily accessible by the streetcar, motorbus or taxi, and will register in the usual manner at a special registration desk. He will then pass through the technical exhibits, which will represent more than three hundred exhibitors, and then through the scientific exhibits, more numerous and occupying a larger space than ever before except at the Centennial Session in Atlantic City, N. J., last year. A complete description of these exhibits appears elsewhere in this issue. After passing through the scientific exhibits the visitor will reach some of the large halls which have been designed for lectures and motion pictures and for the section meetings.

During its history of more than a hundred years the American Medical Association has met frequently in Chicago. More recent previous sessions have been 1918, 1924 and 1944. For most American physicians any detailed discussion of Chicago and its facilities is hardly necessary. The development of Chicago in art, finance, science, manufacturing and as a medical center is phenomenal. Its access to railroad, air and other transportation is more direct than that of any other city in the country.

Chicago Hotels

The visitor to this session need have no fear as to proper hotel accommodations. Although the large centrally located hotels can accommodate many thousands, they are already being taxed to their capacity by reservations of prospective visitors. The city extends, however, many miles to the north, south and west, and there are great numbers of hotels fronting on Lincoln Park and the lake toward the south which are just a few minutes by good transportation to the Loop. As will be noted elsewhere in this issue, the House of Delegates will hold its meetings at the Palmer House. The Inauguration Meeting is scheduled for the Hotel Stevens. The Woman's Auxiliary will meet at the La Salle Hotel. Many of the special societies which will be meeting in Chicago either before or after the Annual Session are scheduled for other hotels. North of the Chicago River, the Sheraton Hotel is accommodating some of the section meetings.

It is suggested that if hotel reservations have not yet been secured by Fellows who expect to attend the Chicago session, such Fellows write directly to Dr. Fred H. Muller, 105 West Madison Street, Room 1707, Chicago 2.

Features of Medical Interest

Chicago provides numerous features of special medical interest. The medical schools are known throughout the world. The University of Chicago, University of Illinois (which includes Rush Medical College), Northwestern University and Loyola University medical schools have many thousands of alumni who will be renewing acquaintanceship with their alma maters. The facilities of Cook County Hospital and many other great hospitals in the Chicago area will be of interest to the physicians from all over the world who are planning to attend this session. Research institutions include those at the University of Chicago, Michael Reese Hospital, the Hektoen Institute of the Cook County Hospital and Children's Memorial Hospital. The Health Department of Chicago will offer opportunity to study its methods and will make available visits to institutions under municipal control, including the contagious hospitals and the Municipal Tuberculosis Sanitarium.

HEADQUARTERS OF THE AMERICAN MEDICAL ASSOCIATION

Fellows are cordially invited to visit the headquarters of the American Medical Association, 535 North Dearborn Street, corner of Dearborn Street and Grand Avenue, at any time during the Annual Session, June 21 to 25, from 8:30 a.m. to 4:30 p.m.

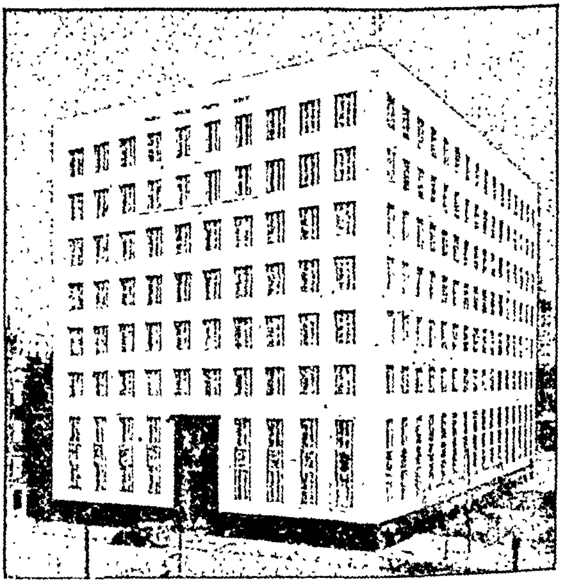
How to Reach the Headquarters of the American Medical Association

For physicians staying at hotels in the Loop, access to the headquarters of the Association is easy by bus, subway or streetcar. Via bus, board a north bound bus on Michigan Boulevard, ride to Grand Avenue and walk four blocks west. Via subway, enter any subway station on State Street, ride north to Grand Avenue and on leaving the subway walk one block west. Via streetcar, board any streetcar on State Street north bound numbered " 6 " or " 36 ", ride to Grand Avenue and walk one block west, or board any streetcar on Clark Street north bound to Grand Avenue and walk one block east.

For physicians stopping at hotels on the north side of the city, the headquarters may be reached as follows: Via bus, take a south bound bus to Grand Avenue and walk four blocks west; via subway, ride south to Grand Avenue and on leaving the subway walk one block west; via streetcar, board a State Street car south bound to Grand Avenue and then walk one block west, or board Clark Street car south bound to Grand Avenue and walk one block east.

Activities of Association

The American Medical Association Building is a nine story stone structure housing all activities of the Association, including its printing plant. For the benefit of visiting Fellows, there is available a staff of guides familiar with the functions of the Association. In addition to the printing plant, including a press room, composing room, mailing room and bindery, which occupy the first three floors and basement, the departments include the Bureau of Medical Economic Research; Bureau of Legal Medicine and Legislation; Bureau of Exhibits; Council on Medical Service; Council on Industrial Health; Council on Pharmacy and Chemistry; Council on Physical Medicine; Council on Foods and Nutrition; Chemical Laboratory; Bureau of Health Education; Bureau of Investigation; Council on Medical Education and Hospitals; Directory Department, including a biographic index of physicians; Hygeia Circulation Department; Office of the Secretary and General Manager; Office of the Business Manager; Advertising Department; Accounting Department; Fellowship, Membership and Subscription Department; Cooperative Medical Advertising Bureau; Office of the Editor; Editorial Department, including News Department, Foreign Abstracting Department, Manuscript Editing Department, Hygeia Editorial Office and Library; Assembly Room, and Board of Trustees Room.



A.M.A. HEADQUARTERS
535 NORTH DEARBORN STREET

Too limited a number of Fellows of the American Medical Association are aware of the facilities available at the headquarters of the Association for carrying on its work, including the physical equipment for the printing of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION; the special journals, namely, *American Journal of Diseases of Children, Archives of Dermatology and Syphilology, Archives of Internal Medicine, Archives of Neurology and Psychiatry, Archives of Ophthalmology, Archives of Otolaryngology, Archives of Pathology, Archives of Surgery* and *Occupational Medicine; Hygeia;* American Medical Directory; *Quarterly Cumulative Index Medicus,* and by-products of THE JOURNAL and of the Press of the American Medical Association.

While it is realized that those who attend the Annual Session of the American Medical Association will be pretty well occupied, it is hoped that each of them will find at least one hour during the week for visiting the Headquarters of the Association to see for himself something of the work that is being done

REGISTRATION

The Bureau of Registration will be located on the Navy Pier. An information bureau will be operated in connection with the Bureau of Registration.

Who May Register

Only Fellows, Affiliate, Associate and Honorary Fellows and Invited Guests, may register and take part in the work of the sections. Fellows of the Scientific Assembly are those who have, on the prescribed form, applied for Fellowship, subscribed to THE JOURNAL and paid their Fellowship dues for the current year. Fellowship dues and subscription to THE JOURNAL are included in the one annual payment of $12, which is the regular subscriptionprice of THE JOURNAL. Fellowship cards are sent to all Fellows after payment of annual dues, and these cards should be presented at the registration window. Any who have not received cards for 1948 should secure them at once by writing to the American Medical Association, 535 North Dearborn Street Chicago 10.

Members in Good Standing Eligible to Apply for Fellowship in the Association

Members in good standing in the American Medical Association are those members of component county medical societies and of constituent state and territorial medical associations whose names are officially reported for enrolment to the Secretary of the American Medical Association by the secretaries of the constituent medical associations. All members in good standing may apply for Fellowship in the Scientific Assembly and are urged to qualify as Fellows before leaving home in order that pocket cards may be secured and brought to Chicago so that registration can be more easily and more promptly effected.

Application forms may be had on request.

Those subscribers to THE JOURNAL who have not received pocket cards for 1948 should write to the American Medical Association in order to obtain application blanks and information as to further requirements..

Register Early

Fellows living in Chicago as well as all other Fellows who are in Chicago on Monday and Tuesday, should register as early as possible.

The names and local addresses of those who register will be included in the issue of the *Daily Bulletin* appearing the next day, and this will enable visiting physicians to find friends who have registered.

Suggestions That Will Facilitate Registration

Fellows should fill out completely the spaces on both sections of the front of the registration card. Physicians who desire to qualify as Fellows should fill out completely the spaces on both sections of the front of the registration card and sign the application on the back. These cards will be found on the tables.

Entries on the registration card should be written plainly, or printed, as the cards are given to the printer to use as "copy" for the *Daily Bulletin*, which appears on Tuesday, Wednesday, Thursday and Friday mornings during the week of the session.

Fellows who have their pocket cards with them can be registered with little or no delay. They should present the filled out registration card, together with the pocket card, at one of the windows marked "Registration by Pocket Card." There the clerk will compare the two cards, stamp the pocket card and return it and supply the Fellow with a badge and a copy of the official program

As previously stated, it will assist in the registration if those who desire to qualify as Fellows will file their applications and qualify as Fellows by writing directly to the American Medical Association, 535 North Dearborn Street, Chicago 10, so that their Fellowship may be entered not later than May 22. Any applications that are received later than May 22 will be given prompt attention, but the Fellowship pocket card may not reach the applicant in time for him to register at the Chicago session.

It will be possible for members of the organization to qualify as Fellows at Chicago. In order to do this, applicants for Fellowship will be required to fill out both sections of the front of the registration card and to sign the formal application that is printed on the reverse side of the card. It is suggested that those members who apply for Fellowship at Chicago bring with them their state membership cards for the year 1948. The state membership card should be presented along with the filled in registration card at the window in the booth marked "Applicants for Fellowship and Invited Guests."

As already stated, registration can be effected more easily and promptly if members will qualify as Fellows before leaving home.

Registration for General Officers and Delegates at the Palmer House

General Officers of the American Medical Association and members of the House of Delegates may register for the Scientific Assembly outside the Red Lacquer Room of the Palmer House. This arrangement is made for the convenience of members of the House of Delegates, which will convene on Monday morning at 10 o'clock in the Red Lacquer Room of the Palmer House. Delegates are requested to register for the Scientific Assembly before presenting credentials to the Reference Committee on Credentials of the House of Delegates. Registration of delegates for the Scientific Assembly will begin at 8 o'clock Monday morning, June 21, and delegates are urged to register early so that all members of the House of Delegates may be seated in in time for the opening session of the House.

TRANSPORTATION

It is suggested that those Fellows who contemplate traveling to Chicago to attend the annual session of the Association secure information concerning railroad and airplane travel directly from their local ticket agents, who are in a position to give them information regarding train or plane schedules and fares.

MEETING PLACES

HOUSE OF DELEGATES: Red Lacquer Room, Palmer House, 15 East Monroe Street.

GENERAL SCIENTIFIC MEETINGS: Auditorium, Navy Pier.

INAUGURATION MEETING: Ballroom, Stevens Hotel, 720 South Michigan Avenue.

GENERAL HEADQUARTERS, REGISTRATION BUREAU, SCIENTIFIC EXHIBIT, TECHNICAL EXHIBITS AND INFORMATION BUREAU: Navy Pier.

EXPERIMENTAL MEDICINE AND THERAPEUTICS: Room 4, Navy Pier.

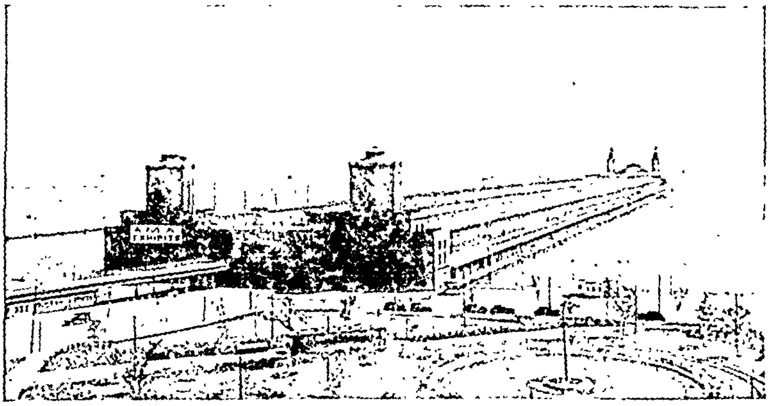
PATHOLOGY AND PHYSIOLOGY: Room 4, Navy Pier.

NERVOUS AND MENTAL DISEASES: Room 3, Navy Pier.

DERMATOLOGY AND SYPHILOLOGY: Room 1, Navy Pier.

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH: Room 5, Navy Pier.

UROLOGY: Room 1, Navy Pier.



NAVY PIER WHERE MANY SECTION MEETINGS WILL BE HELD. ALSO REGISTRATION AND THE EXHIBITS.

SECTIONS OF SCIENTIFIC ASSEMBLY

INTERNAL MEDICINE: Auditorium, Navy Pier.

SURGERY, GENERAL AND ABDOMINAL: Ballroom, Sheraton Hotel, 505 North Michigan Avenue.

OBSTETRICS AND GYNECOLOGY: Ballroom, Sheraton Hotel, 505 North Michigan Avenue.

OPHTHALMOLOGY: Thorne Hall, Northwestern University, 710 Lake Shore Drive.

LARYNGOLOGY, OTOLOGY AND RHINOLOGY: Thorne Hall, Northwestern University, 710 Lake Shore Drive.

PEDIATRICS: Auditorium, Navy Pier.

ORTHOPEDIC SURGERY: Room 3, Navy Pier.

GASTRO-ENTEROLOGY AND PROCTOLOGY: Room 5, Navy Pier.

RADIOLOGY: Boulevard Room, Sheraton Hotel.

ANESTHESIOLOGY: Boulevard Room, Sheraton Hotel.

GENERAL PRACTICE OF MEDICINE: Room 2, Navy Pier.

MISCELLANEOUS TOPICS: Session on Allergy, Session on Diseases of the Chest and Session on History of Medicine: Room 2, Navy Pier. Session on Physical Medicine: Assembly Room, Building of the American Medical Association, 535 North Dearborn Street.

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ENTERTAINMENT

Conference of County Society Officers

There will be a conference of county medical society officers on Sunday, June 20, at 2:30, in the Red Lacquer Room of the Palmer House. It will be conducted in round table fashion with Dr. A. M. Mitchell of Terre Haute, Ind., as moderator. Fellows are invited to attend this conference.

Dinner for Delegates

A dinner is being arranged for Monday, June 21, for members of the House of Delegates and officers of the Association. Complete information concerning the dinner will be available at the first meeting of the House of Delegates on Monday morning, June 21.

Luncheon for Delegates

A luncheon for the members of the House of Delegates and the officers of the American Medical Association is being planned for Tuesday noon, June 22, between the morning and afternoon meetings of the House of Delegates at the Palmer House.

Installation of President

The Inauguration Meeting at which the President will be installed will be held on Tuesday evening, June 22, in the Ballroom of the Hotel Stevens.

Breakfast for Vice Presidents

VICE PRESIDENTS' Breakfast, given by Dr. L. H. South, Tuesday, June 22, 8 a.m., Palmer House.

President's Reception and Ball

The President of the Association will be honored with a reception and ball to be held Thursday evening, June 24, at 9 o'clock in the Ballroom of the Palmer House.

Luncheons, Dinners and Meetings of other Organizations

ALPHA KAPPA KAPPA, Luncheon, Wednesday, June 23 in the Gothic Room of the Sheraton Hotel, 12:30 p.m.

ALPHA OMEGA ALPHA, Dinner, Thursday, June 24 in the Palmer House, 6:30 p. m.

ALUMNAE ASSOCIATION OF WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA, Dinner, Wednesday, June 23, at 7 o'clock in Windemere East Hotel, Regency Room, $4 a person. Reservations may be made through Dr. Doris Phillips, Michael Reese Hospital, Chicago.

ALUMNI ASSOCIATION OF LONG ISLAND COLLEGE OF MEDICINE, Cocktail Party, Wednesday, June 23, 5 to 7 p.m., Stevens Hotel, Chicago.

ALUMNI OF NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, Luncheon, Thursday, June 24 at Thorne Hall, Northwestern University, 12 noon, $1.50 a person. Reservations may be made through the Medical Alumni Office, 303 East Chicago Avenue, Chicago 11.

ALUMNI ASSOCIATION OF UNIVERSITY OF LOUISVILLE, Wednesday, June 23.

AUGUSTANA HOSPITAL INTERNS ALUMNI REUNION, Banquet, La Salle Hotel, Wednesday, June 23, 6:30 p. m. $6 a plate.

CHRISTIAN MEDICAL SOCIETY, Convention Dinner, 6:00 p.m., Wednesday, June 23, Eitel Restaurant, Field Building, 135 South LaSalle Street. $3.50 a plate. Speaker, Dr. L. Nelson Bell.

CORNELL UNIVERSITY MEDICAL COLLEGE Alumni, Dinner, 7:00 p.m., Thursday, June 24, Palmer House. $6.00 a ticket.

FEDERATION OF CATHOLIC PHYSICIANS' GUILDS, Wednesday, June 23, Luncheon.

HARVARD MEDICAL SCHOOL ALUMNI ASSOCIATION, Dinner, Wednesday, June 23, 6:30 p.m., University Club, 76 East Monroe Street. Speakers will be Dean Burwell and Drs. Walter Bauer and Francis D. Moore.

IOTA CHAPTER OF PHI BETA PI, UNIVERSITY OF ILLINOIS CHAPTER, Stag Dinner, 7:30 p.m. Monday, June 21, Hotel La Salle, $6.00 a ticket.

LOYOLA UNIVERSITY ALUMNI ASSOCIATION, Dinner 6 p.m. Wednesday, June 23, Sheraton Hotel, $ 4.50 a plate.

PHI BETA PI FRATERNITY, Luncheon, La Salle Hotel, Wednesday, June 23, $4 a plate.

PHI DELTA EPSILON MEDICAL FRATERNITY, Luncheon, the Standard Club, 12:30 p. m. Wednesday, June 23, $2.25 a ticket.

PHI LAMBDA KAPPA MEDICAL FRATERNITY, Luncheon Reunion Meeting, Congress Hotel, Wednesday, June 23, 12:15 p. m.

PHI RHO SIGMA ALUMNI, Luncheon, Wednesday, June 23, 12:30 p. m., Chicago Yacht Club.

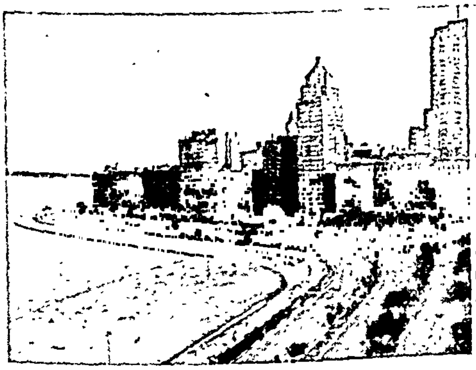
PRESBYTERIAN HOSPITAL, Intern-Resident Reunion, Dinner, Tuesday, June 22, 6:30 p. m., Congress Hotel, Casino Room. Reservations may be made through the Medical Director's Office of the Hospital.

RUSH MEDICAL ALUMNI ASSOCIATION, Luncheon, Wednesday, June 23, 12 noon, Palmer House. For advance reservation write Dr. Grant H. Laing, Secretary, 104 South Michigan, Chicago.

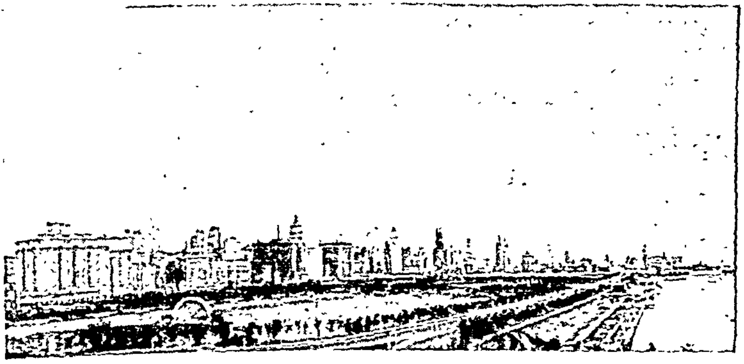
WOMAN'S AUXILIARY

A most cordial invitation is extended to all women who are Auxiliary members or guests of physicians attending the session of the American Medical Association to participate in all social functions and attend the general sessions. Whether Auxiliary members or not, the wives of physicians will be most welcome.

Auxiliary headquarters will be on the mezzanine floor of the Hotel LaSalle. All meetings and functions will be held at the Hotel LaSalle unless otherwise stated in the program or announced during the meeting. Please register early and obtain your badge and program of the social functions.



THE NEAR NORTHSIDE AT OAK STREET AND THE OUTER DRIVE.



THE CHICAGO SKYLINE ALONG MICHIGAN AVENUE LOOKING NORTH. THE HOTEL STEVENS IS THE FIRST BUILDING ON THE LEFT.

All tickets should be purchased soon after arrival. These will be sold only at the Auxiliary headquarters. All meetings and social affairs will begin at the time scheduled. Please be prompt.

REGISTRATION HOURS

Sunday	2 p.m. to 4 p.m.
Monday	9 a.m. to 4 p.m.
Tuesday	9 a.m. to 4 p.m.
Wednesday	9 a.m. to 4 p.m.

Preconvention Meetings

PROGRAM

SUNDAY, JUNE 20, 1948

COMMITTEE MEETINGS

2 to 4 p.m. Registration (mezzanine floor).

8 p.m. Finance Committee, Room B (mezzanine floor). Mrs. Scott C. Applewhite, chairman.

MONDAY, JUNE 21

9:30 a.m. Board of Directors, Room B (mezzanine floor). Presiding.....Mrs. Eustace A. Allen, President.

10 a.m. Nominating Committee, Room A (mezzanine floor). Mrs. David W. Thomas, chairman.

12:30 p.m. Luncheon of Board of Directors, Room C (mezzanine floor).

4 p.m. Tea in honor of Mrs. Eustace A. Allen, President. and Mrs. Luther H. Kice, President-Elect, Woman's Auxiliary to the American Medical Association, Century Room.

Tickets $1.25. All doctors' wives cordially invited.

Hostesses: Auxiliaries to the Illinois State Medical Society and to the Chicago Medical Society.

8 p.m. Revisions Committee Meeting, Room B (mezzanine floor). Mrs. Roscoe E. Mosiman, chairman.

TUESDAY, JUNE 22

9 a.m

Formal opening of the twenty-fifth annual meeting of the Woman's Auxiliary to the American Medical Association.

Illinois Room (mezzanine floor)

Presiding.......Mrs. Eustace A. Allen, President

Invocation...........Rev. Charles Ray Goff, D.D.

Pastor, Chicago Temple, First Methodist Church

Pledge of Loyalty to the Woman's Auxiliary to the American Medical Association..Mrs. Jesse D. Hamer

Greetings................J. Roscoe Miller, M.D., President, Chicago Medical Society

Address of Welcome.............Mrs. John Soukup, Immediate Past President, Woman's Auxiliary to the Illinois State Medical Society

Response..................Mrs. Robert Flanders, President, Woman's Auxiliary to the New Hampshire Medical Society

Presentation of Convention Chairman, Mrs. Rollo K. Packard

Presentation of President-Elect, Mrs. Luther H. Kice

Introductions..............Mrs. Eustace A. Allen

Roll Call....................Mrs. George Turner, Constitutional Secretary

Minutes of the 24th Annual Meeting, Mrs. George Turner

Convention Rules of Order.....Mrs. John S. Bouslog

Credentials and Registration, Mrs. James M. McDonnough

Address of the President.....Mrs. Eustace A. Allen

REPORTS OF OFFICERS

President Elect..............Mrs. Luther H. Kice

First Vice President........Mrs. David B. Allman

Second Vice President.......Mrs. Leo J. Schaefer

Third Vice President.....Mrs. E. Arthur Underwood

Fourth Vice President.........Mrs. W. W. Potter

Treasurer..................Mrs. Arthur A. Herold (including the report of the Auditor)

Constitutional Secretary......Mrs. George Turner

12 m. Luncheon in honor of the Past Presidents of the Woman's Auxiliary to the American Medical Association, Grand Ballroom, nineteenth floor. Tickets $3.50. Mrs. Rollo K. Packard, past president, presiding.

Guest Speaker: Morris Fishbein, M.D., Editor, THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and *HYGEIA*.

AFTERNOON SESSION

2 p.m.

Report of the Board of Directors, Mrs. Eustace A. Allen

Reports of Chairmen of Standing Committees:

Editorial...............Mrs. James P. Simonds

Finance..............Mrs. Scott C. Applewhite

Hygeia..................Mrs. Arthur I. Edison

Legislation...............Mrs. Bruce Schaefer

Organization.............Mrs. David B. Allman

Post-War Planning.......Mrs. Rollo K. Packard

Program....................Mrs. Ralph Eusden

Public Relations......Mrs. Harold F. Wahlquist

Revisions..............Mrs. Roscoe E. Mosiman

Report of the Historian......Mrs. Jesse D. Hamer

Report of the *Central Office* and Bulletin Circulation:....Miss Margaret Wolfe

Report of the Nominating Committee (first reading) Mrs. David W. Thomas, Chairman

Election of the 1949 Nominating Committee.

4 p.m.

Round Table Discussion:

Hygeia..................Mrs. Arthur I. Edison

Legislation...............Mrs. Bruce Schaefer

Program....................Mrs. Ralph Eusden

Public Relations......Mrs. Harold F. Wahlquist

8 p.m.

Inauguration Meeting of the American Medical Association, Grand Ballroom, Hotel Stevens, Members of the Woman's Auxiliary and guests are welcome.

WEDNESDAY, JUNE 23

9 a.m.

General Session of the Woman's Auxiliary to the American Medical Association, Illinois Room (mezzanine floor)

Presiding...............Mrs. Eustace A. Allen

Greetings......Warren W. Furey, M.D., Chairman, Local Committee on Arrangements of the American Medical Association

Minutes....................Mrs. George Turner

Announcements.........Mrs. Rollo K. Packard

Credentials and Registration Mrs. James M. McDonnough

In Memoriam...........Mrs. Van Buren Philpot

Resolutions............Mrs. Henry Garnjobst

Reports of state presidents.

12:30 p.m.

Annual Luncheon in honor of Mrs. Eustace A. Allen, president, and Mrs. Luther *H*. Kice, president-elect, Grand Ballroom, nineteenth floor. Tickets, $3.50. Mrs. Eustace A. Allen, presiding.

Guests of Honor: Dr. Edward L. Bortz, President; Dr. R. L. Sensenich, President-Elect; Dr. J. J Moore, Treasurer; Dr. George F. Lull, Secretary and General Manager; Dr. Morris Fishbein, Editor of THE JOURNAL and HYGEIA, and the members of the Advisory Council of the Woman's Auxiliary to the American Medical Association.

2:00 p.m.

Joint meeting of the Advisory Council of the Woman's Auxiliary to the American Medical Association and the Board of Directors of the Woman's Auxiliary.

AFTERNOON SESSION

2:30 p.m.

Unfinished Business

New Business

Report of the Nominating Committee Mrs. David W. Thomas

Election of Officers

Installation of Officers and Presentation of President's Pin......Mrs. Frank N. Haggard

Inaugural Address.........Mrs. Luther H. Kice

Convention

Courtesy Resolutions....Mrs. Arthur J. McCarey

Minutes....................Mrs. George Turner

Adjournment

THURSDAY, JUNE 24

9:30 a.m.

Meeting of the Board of Directors, Room B (mezzanine floor)

6:30 p.m.

Annual Dinner of the Woman's Auxiliary for members, husbands and guests, Grand Ballroom, nineteenth floor. Tickets $4.

9 p.m.
Reception and Ball in honor of the President of the American Medical Association, Palmer House.

FRIDAY, JUNE 25

Exhibits at Navy Pier.

Local Committee on Convention Arrangements

Mrs. Rollo K. Packard, Chairman

Mrs. James P. Simonds..........Mrs. John Soukup
Mrs. Arthur I. Edison..........Mrs. L. N. Hamm
Mrs. G. Henry Mundt....Mrs. James McDonnough
Mrs. Lucius Cole.........Mrs. Henry L. Schmitz
Mrs. Nathaniel Baskind, Secretary-Treasurer

Chairmen of Subcommittees

Credentials and Registration:
Mrs. James G. W. Lawson
Mrs. M. F. Stein
Mrs. A. H. Hallman
Mrs. H. D. Wallin

Information and Tour:
Mrs. Arthur I. Edison
Mrs. Samuel Plice
Mrs. Nicholas Dykstra
Mrs. Theodore Johnston

Tickets and Reservations:
Mrs. W. J. Wanninger
Mrs. Julius Ginsberg
Mrs. L. A. Hare
Mrs. Anders J. Weigen

Publicity: Mrs. G. T. Buttice

Messengers: Mrs. Roy M. Hutchinson

House: Mrs. O. J. Rabe

Reception:
Mrs. G. Henry Mundt
Mrs. Warren W. Furey
Mrs. Willard Thompson
Mrs. James P. Simonds
Mrs. Josiah J. Moore
Mrs. Morris Fishbein
Mrs. George F. Lull

Tea:
Mrs. James McDonnough
Mrs. Henry L. Schmitz
Mrs. John Soukup
Mrs. L. N. Hamm

Luncheon Tuesday:
Mrs. Henry L. Schmitz
Mrs. John A. Cousins
Mrs. C. Otis Smith

Luncheon Wednesday:
Mrs. Harold Miller
Mrs. Virgil L. VanStane
Mrs. I. Wynekoop

Dinner:
Mrs. M. M. Hipskind
Mrs. Morris I. Friedell
Mrs. John H. Glynn

Convention Committees

Election: Mrs. Fred Moore

Timekeepers:
Mrs. G. G. Woodruff
Mrs. T. Grover Amos

Reading Committee:
Mrs. James P. Simonds, Chairman
Mrs. George Turner
Mrs. David F. Adcock
Miss Margaret Wolfe

PHYSICIANS' ART EXHIBIT

The American Physicians Art Association will have exhibitions during the American Medical Association session in Chicago June 21 to 25, on the Navy Pier. Over two hundred cups will be awarded winners in the various types of art. For detailed information write to F. H. Redewill, M.D., Executive Secretary, 526 Flood Building, San Francisco 2.

GOLF TOURNAMENT

The American Medical Golfing Association will hold its thirty-second tournament on Monday, June 21. The famous, beautiful and sporty Olympia Fields has been reserved for the medical golfers' tournament. Dinner will be held in Olympia Fields C.C. Clubhouse, after which prizes will be awarded.

Two Eighteen-Hole Courses

Olympia Fields Country Club has two eighteen-hole courses which are ideal for experts and a treat for players with higher handicaps. Fellows may tee off between 7:30 a.m. and 2 p.m. Luncheon will be served at the club. The golfers' banquet will be held at 7 p.m. Entertainment will follow the awarding of prizes.

Trophies and Prizes

Trophies will be awarded for the Association championship (thirty-six holes), the Will Walter Trophy; the runner-up champion, the Detroit Trophy; the eighteen hole championship, the Golden State Trophy; the runner-up eighteen hole champion, the Ben Thomas Trophy. The Section Event will include sterling silver pitchers for eight sections including internal medicine, surgery, gynecology and obstetrics, dermatology and syphilology, radiology, general practice, pediatrics, eye, ear, nose and throat, and urology. The first flight (0 to 13) will contain trophies and prizes for both gross and net in thirty-six and eighteen holes including the St. Louis Trophy, the President's Trophy, the Atlantic City Trophy and the Sperry Trophy. The second and third flights (14 to 18 and 19 to 30), will contain prizes for both thirty-six and eighteen holes; the maturity event (for Fellows 60 years and older), the Minneapolis Trophy; the Old Guard Championship, the Wendell Phillips Trophy. In addition to these, approximately seventy-five other prizes will be in competition.

Trophies Awarded at Recent Annual Tournaments of American Medical Golfing Association.

Ten trophies of the American Medical Golfing Association are on permanent display at the American Medical Association headquarters in Chicago.

in a case in the reception room to the right of the entrance.

In the back row in the picture are the Detroit Trophy for the runner-up champion thirty-six holes; the Golden State Trophy, which goes to the champion for the eighteen hole gross; the Minneapolis Trophy, top prize in the Maturity Event; the Will Walter Trophy for the Champion of the Field for the best thirty-six hole gross, and the Ben Thomas Trophy for the runner-up champion of the eighteen hole gross.

In the front row are the Wendell Phillips Trophy, emblematic of the "Old Guard Championship"; the Sperry Trophy, first flight, low net eighteen holes; the Atlantic City Trophy for the winner of the first flight low gross eighteen holes; the St. Louis Trophy, emblematic of first flight, low gross thirty-six holes, and the Wetherell Trophy, first flight, second low net, eighteen holes.

Chicago Committee on Arrangements

The Chicago Committee on Arrangements is under the chairmanship of Charles E. Shannon, 104 South Michigan Avenue, Chicago. He will be assisted by Robert Cummings, J.F. Delph, Frank Fowler, F.P. Hammond, Robert Hawkins, J.H. Hutton, G.E. Johnson, H.E. Mock, H.K. Nicoll, H.P. Saunders and Paul Vermeren.

Application for Membership

The Chicago Tournament will give an opportunity to old and new Fellows to enjoy a wonderful day of golf, to win a nice prize and to join in the famous good-fellowship of the American Medical Golfing Association.

All male Fellows of the American Medical Association are cordially invited to become Fellows of the American Medical Golfing Association; write Secretary Bill Burns, 2020 Olds Tower, Lansing 8, Mich., for application blank. Participants in the tournament are required to present their home club handicap, signed by the club secretary, or to accept a handicap set by the A.M.G.A. Handicap Committee. No handicap over 30 is allowed. All eighteen hole trophies and prizes are awarded on the basis of scores for the first eighteen holes played. A Fellow absent from the annual banquet following the tournament forfeits his rights to a trophy or prize.

American Medical Golfing Association Officers

Waltman Walters, Rochester, Minn., is President, W.C. Speidel, Seattle, is First Vice President and Director of Handicaps and Jean A. Gruhler, Atlantic City, N.J., is Second Vice President and Director of Arrangements. President Walters anticipates that approximately three hundred Fellows of the A.M.G.A. will play in the enjoyable Chicago tournament on Monday, June 21.

TELEVISION PROGRAM
June 21-25, 1948

A television program has been arranged by Northwestern University Medical School for each day of the Annual Session, as follows:

	Monday	Tuesday	Wednesday	Thursday	Friday
9 a.m.	Roentgen Ray Injuries	Congenital Cardiac Anomalies	Obstetrics and Gynecology	Problems of Lower Genitourinary Tract	Adult Chest and Cardiac Clinic
	Michael L. Mason	Stanley Gibson William Potts	Arthur Curtis George Gardner John Brewer James Fitzgerald Chester Doherty	Vincent O'Conor Leander Riba Knowlton Barber	Don Sutton Chauncey Maher
10 a.m.				Parenteral Fluids	
				Walter Maddock Smith Freeman	
11 a.m.	Orthopedic Clinic			Anesthesia Demonstration	Endocrinology Clinic
	James K. Stack			Mary Karp Mary Frances Poe	M.D. Allweiss
1 p.m.	Early Skin Grafting in Burns	Tendon Suture	Peptic Ulcer	Peripheral Nerve Injuries	Hypertension and Sympathectomy
	Harvey Allen	Sumner L. Koch	Clifford Barborka Karl Meyer	Loyal Davis Lewis Pollock	Howard Lindberg John Martin
3	Examination of the Back	Suction Limb Prostheses	Physical Therapy Demonstrations	Medical Neurology	Dermatologic Demonstrations
	Philip Lewin	Clinton Compere	Stafford S. Osborne	Benjamin Boshes Alex Arieff	E. A. Oliver and associates

PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

GENERAL SCIENTIFIC MEETINGS

Auditorium, Navy Pier (Room 6)

MONDAY, JUNE 21, 2:00 P. M.

Charles H. Phifer, Member,
Council on Scientific Assembly, Presiding

Practical Clinical Applications of Current Pharmacology.
Chauncey D. Leake, Galveston, Texas.

Principles of Endocrine Therapy.
Allan T. Kenyon, Chicago.

Cytologic Method in the Early Diagnosis of Cancer.
Maurice Fremont-Smith, Boston.

TUESDAY, JUNE 22, 9:00 A. M.

L. W. Larson, Member,
Council on Scientific Assembly, Presiding

Present Status of Narcotic Addiction, with Particular Reference to Medical Indications and Comparative Addiction Liability of the Newer and Older Narcotic Drugs.
Victor H. Vogel, Lexington, Ky.

Ordeals of Public Health.
Hernan Romero, Santiago, Chile.

11:00 A. M.

Stanley P. Reimann, Member,
Council on Scientific Assembly, Presiding

Physician's Obligation When Death Has Resulted From Violent or Obscure Causes.
Alan R. Moritz, Boston.

Blood Transfusion in Medical and Surgical Practice.
Everett Evans, Richmond, Va.

Clinical Uses of Blood Derivatives.
Charles A. Janeway, Boston.

TUESDAY, JUNE 22, 2:00 P. M.

Henry R. Viets, Chairman

Atomic Energy and Medicine.
Lewis L. Strauss, Washington, D. C.

Isotopes for Medicine.
Paul C. Aebersold, Oak Ridge, Tenn.

Isotopes and Internal Radiation.
Joseph G. Hamilton, Berkeley, Calif.

Medical Aspects of the Atomic Bomb.
Stafford L. Warren, Los Angeles.

Medical Program of the Atomic Energy Commission.
Shields Warren, Boston.

THE INAUGURATION MEETING

Ballroom, Hotel Stevens

TUESDAY, JUNE 22, 8 p.m.

Music.

Call to Order by the President, Edward L. Bortz.

Invocation.

Music.

Announcements.
Warren W. Furey, Chairman,
Local Committee on Arrangements.

Music.

Introduction and Installation of President-Elect
R. L. Sensenich.

Address.
R. L. Sensenich, President.

Music.

Presentation of Medal to Retiring President,
Edward L. Bortz.
Elmer L. Henderson, Chairman, Board of Trustees.

Presentation of Distinguished Service Medal.
R. L. Sensenich, President.

Music.

THE PROGRAMS OF THE SECTIONS

Outline of the Scientific Proceedings—The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order that will be followed in the Official Program, nor is the list complete. The Official Program will be similar to the programs issued in previous years and will contain the final program of each section with abstracts of the papers, as well as lists of committees, program of the General Meeting, list of entertainments and other information. To prevent misunderstandings and protect the interest of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each Fellow on registration.

SECTION ON INTERNAL MEDICINE

MEETS IN AUDITORIUM, NAVY PIER (ROOM 6)

OFFICERS OF SECTION

Chairman—Cecil J. Watson, Minneapolis.

Vice Chairman—James A. Greene, Houston, Texas.

Secretary—Walter L. Palmer, Chicago.

Executive Committee—William D. Stroud, Philadelphia; Joseph T. Wearn, Cleveland; Cecil J. Watson, Minneapolis.

Wednesday, June 23—2 p. m.

The Therapy of Migraine, (Lantern Demonstration).
Robert Marcussen and Harold G. Wolff, New York.

What is Psychotherapy?
Henry M. Thomas Jr., Baltimore.

The Treatment of Pernicious Anemia (Lantern Demonstration).
Russell L. Haden and Donald W. Bortz, Cleveland.

Selection of Therapy for Individual Patients with Thyrotoxicosis.
Robert H. Williams, Boston.

The Frank Billings Lecture: Protein Comes Into Its Own.
James S. McLester, Birmingham, Ala.

The Furtherance of Diabetes Therapy (Lantern Demonstration).
Elliott P. Joslin, Boston.

Thursday, June 24—2 p.m.

Election of Officers

Prognosis of Acute Myocardial Infarction (Lantern Demonstration).
F. Tremaine Billings Jr., Bernard M. Kalstone, James L. Spencer and George R. Meneely, Nashville, Tenn.

The Mechanism and Treatment of Renal Dysfunction in Chronic Congestive Heart Failure (Lantern Demonstration).
Louis Leiter, Reuben Mokotoff, Raymond Weston, Doris J. W. Escher, Leon Hellman and Martin Cherkasky, New York.

Chairman's Address (Lantern Demonstration).
Cecil J. Watson, Minneapolis.

Sarcoidosis (Lantern Demonstration).
Edward S. Ray, Richmond, Va.

The Value of Cytologic Study of Sputum and Bronchial Secretions in the Diagnosis of Carcinoma of the Lung (Lantern Demonstration).
John R. McDonald and Lewis B. Woolner, Rochester, Minn.

Discontinuous Therapy with Penicillin (Lantern Demonstration).
Ralph Tompsett, Alphonse Timpanelli and Walsh McDermott, New York.

Friday, June 25—9 a.m.

JOINT MEETING WITH SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS IN ROOM 4, NAVY PIER

Report of Committee for the Evaluation of the Use of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction (Lantern Demonstration).
Irving S. Wright, Chairman, and Charles D. Marple, Executive Secretary of Committee, New York.

Pathogenesis of Arterial Hypertension.
Irvine H. Page, Cleveland.

Psychologic Aspects of Arterial Hypertension.
George Saslow, St. Louis.

Laboratory Studies in Man of Drugs Recently Introduced for the Relief of Essential Hypertension (Lantern Demonstration).
Robert W. Wilkins, Boston.

The Effect of Low Salt Diets on Arterial Hypertension: A Comparison of the Effects of Low Salt and Rice Diets in the Treatment of Arterial Hypertension (Lantern Demonstration).
Henry A. Schroeder, St. Louis.

Review of Fifteen Years' Experience with Sympathectomy in the Treatment of Hypertension at Massachusetts General Hospital.
Kenneth A. Evelyn, London, Ontario, Canada.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

MEETS IN BALLROOM, SHERATON HOTEL

OFFICERS OF SECTION

Chairman—B. Noland Carter, Cincinnati.

Vice Chairman—Warren H. Cole, Chicago.

Secretary—Michael E. DeBakey, New Orleans

Executive Committee—Daniel C. Elkin, Atlanta, Ga.; Alton Ochsner, New Orleans; B. Noland Carter, Cincinnati.

Wednesday, June 23—9 a. m.

Factors Contributing to Low Mortality in Appendectomy for Acute Appendicitis: A Ten Year Study (Lantern Demonstration).
Arthur B. McGraw, Detroit.
Discussion to be opened by Frederick F. Boyce, New Orleans, and Max M. Zinninger, Cincinnati.

The Treatment of Acute Septic Peritonitis (Lantern Demonstration.)
William A. Altemeier, Cincinnati.
Discussion to be opened by Champ Lyons, New Orleans; John S. Lockwood, New York, and Edwin J. Pulaski, San Antonio, Texas.

Acute Obstruction of the Small Bowel (Lantern Demonstration).
Robert W. Buxton and Frederick A. Coller, Ann Arbor, Mich.
Discussion to be opened by Owen H. Wangensteen, Minneapolis, and Charles G. Johnston, Detroit.

Acute Obstruction of the Colon (Lantern Demonstration).
Marshall L. Michel, New Orleans.
Discussion to be opened by Clarence Dennis, Minneapolis, and George V. Brindley, Temple, Texas.

The Rationale and Value of Combined (One Stage) Splenectomy and Portocaval Shunts in Portal Hypertension: Observations on Venous Shunts in the Postsplenectomy Patient with Recurring Hemorrhage.
Louis M. Rousselot, New York.
Discussion to be opened by Robert M. Zollinger, Columbus, Ohio, and Robert R. Linton, Brookline, Mass.

Empyema (Lantern Demonstration).
Brian B. Blades, Washington, D. C.
Discussion to be opened by Edward M. Kent, Pittsburgh, and Thomas H. Burford, St. Louis.

Thursday, June 24—9 a. m.

Election of Officers

Chairman's Address: The Present Status of Surgery of the Heart and Associated Great Vessels (Lantern Demonstration).
B. Noland Carter, Cincinnati.

The Incidence of Malignant Tumors of the Thyroid (Lantern Demonstration).
George Crile Jr., Cleveland.
Discussion to be opened by Charles W. Mayo, Rochester, Minn., and Warren H. Cole, Chicago.

Hyperthyroidism (Lantern Demonstration).
I. S. Ravdin and Edward Rose, Philadelphia.
Discussion to be opened by Harold L. Foss, Danville, Pa., and Warren H. Cole, Chicago.

Hypertension: Evaluation of Treatment (Lantern Demonstration).
Winchell McK. Craig, Rochester, Minn.
Discussion to be opened by Geza de Takats, Chicago, and James L. Poppen, Boston.

Acute Arterial Injuries (Lantern Demonstration).
Norman E. Freeman, San Francisco.
Discussion to be opened by Frederick W. Cooper, Emory University, Ga.; Harris B. Shumacker Jr., Baltimore, and Geza de Takats, Chicago.

Surgical Treatment for Coarctation of the Aorta (Lantern Demonstration).
Robert E. Gross, Boston.
Discussion to be opened by Willis J. Potts, and Richard B. Capps, Chicago.

Friday, June 25—9 a. m.

JOINT MEETING WITH SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

Newer Aspects of the Treatment of Ulcer (Lantern Demonstration).
A. H. Aaron, Buffalo.

Vagotomy (Lantern Demonstration).
Keith S. Grimson, R. W. Rundles, George J. Baylin and H. M. Taylor, Durham, N. C.
Discussion on papers of Dr. Aaron and Drs. Grimson, Rundles, Baylin and Taylor to be opened by Lester R. Dragstedt, Chicago; Francis D. Moore, Boston; A. C. Ivy, Chicago; Waltman Walters, Rochester, Minn., and Walter L. Palmer, Chicago.

Nonspecific Inflammatory Lesions of the Terminal Ileum and Colon.
Russell S. Boles, Philadelphia.

Nonspecific Inflammatory Lesions of the Small and Large Bowel (Lantern Demonstration).
Leland S. McKittrick, Boston.
Discussion on papers of Drs. Boles and McKittrick to be opened by Clarence Dennis, Minneapolis; Burrill B. Crohn, New York; Lester R. Dragstedt, Chicago, and Everett D. Kiefer, Boston.

Diagnosis of Carcinoma of the Colon and Rectum (Lantern Demonstration).
Neil W. Swinton, Hugh F. Hare and William A. Meissner, Boston.
Discussion to be opened by Harry M. Weber, Rochester, Minn., and William H. Daniel, Los Angeles.

SECTION ON OBSTETRICS AND GYNECOLOGY

MEETS IN BALLROOM, SHERATON HOTEL

OFFICERS OF SECTION

Chairman—William F. Mengert, Dallas, Texas

Vice Chairman—Robert L. Faulkner, Cleveland.

Secretary—Arthur B. Hunt, Rochester, Minn.

Executive Committee—Philip F. Williams, Philadelphia; Alice F. Maxwell, San Francisco; William F. Mengert, Dallas, Texas.

Wednesday, June 23—2 p. m.

The Management of Occiput Posterior Position (Lantern Demonstration).
Gerald W. Gustafson, Indianapolis.
Discussion to be opened by Edward L. Cornell, Chicago, and Gerald Rogers, Oklahoma City.

Report of a Ten Year Experiment in the Control of Cancer of the Uterus (Lantern Demonstration).
Catherine MacFarlane, Philadelphia.
Discussion to be opened by B. Z. Cashman, Pittsburgh, and Augusta Webster, Chicago.

Unusual Experiences in the Practice of Obstetrics and Gynecology in China.
Goodrich C. Schauffler, Portland, Ore.
Discussion to be opened by Frank E. Whitacre, Memphis, Tenn.

Panel Discussion on Endometriosis

Joe V. Meigs, Boston, Moderator.

Diagnosis and Medical Management (Lantern Demonstration).
Francis B. Carter, Durham, N. C.

Conservative Surgical Treatment in Young Women (Lantern Demonstration).
Clayton T. Beecham, Philadelphia.

Management of Complications of Endometriosis (Lantern Demonstration).
Clyde L. Randall, Buffalo.

Thursday, June 24—2 p. m.

Election of Officers

Chairman's Address: Estimation of Pelvic Capacity (Lantern Demonstration).
William F. Mengert, Dallas, Texas.

Culdoscopy (Lantern Demonstration).
Albert Decker, New York.
Discussion to be opened by Richard W. TeLinde Baltimore.

Pseudomalignant Changes in the Cervix During Pregnancy (Lantern Demonstration).
Wilson Footer, Oakland, Calif.

Panel Discussion on Obstetric Hemorrhage

Charles A. Gordon, Brooklyn, Moderator.

Antipartum and Intrapartum Obstetric Hemorrhage.
Bernard J. Hanley, Los Angeles.

Postpartum Hemorrhage.
Russell J. Moe, Duluth, Minn.

Precautions to be taken on Blood Transfusion.
Joseph M. Hill, Dallas, Texas.

Precautions in the Use of Plasma in Obstetric Hemorrhage, with Special Reference to the Causation of Hepatitis (Lantern Demonstration).
Frederick W. Hoffbauer, Minneapolis.

Friday, June 25—9 a. m.

JOINT MEETING WITH SECTION ON PEDIATRICS IN AUDITORIUM, NAVY PIER (ROOM 6)

Panel Discussion on Fetal Anoxia at Birth (Cyanosis of the Newborn)

C. Anderson Aldrich, Rochester, Minn., Moderator.

Physiologic Background of Fetal Anoxia at Birth.
Clement A. Smith, Boston.

Prevention of Fetal Anoxia at Birth (Lantern Demonstration).
Nicholson J. Eastman, Baltimore.

Differential Diagnosis and Management of Fetal Anoxia at Birth.
Stewart H. Clifford, Boston.

Pathology of Conditions in which Fetal Anoxia at Birth is an Outstanding Feature (Lantern Demonstration).
W. W. Zuelzer, Detroit.

Rh-Negative Offspring of Immunized Mothers (Lantern Demonstration).
Edwin L. Kendig, Richmond, Va.
Discussion to be opened by S. A. Cosgrove, Jersey City, N. J., and J. Buren Sidbury, Wilmington, N. C.

Emergencies Encountered in the Neonatal Period (Lantern Demonstration).
M. Hines Roberts, Atlanta, Ga.
Discussion to be opened by Fred L. Adair, Chestertown, Ind., and Nina A. Anderson, Cincinnati.

Ovarian Tumors in Childhood (Lantern Demonstration).
Harold W. Dargeon, New York.
Discussion to be opened by Goodrich C. Schauffler, Portland, Ore.

SECTION ON OPHTHALMOLOGY

MEETS IN THORNE HALL, NORTHWESTERN UNIVERSITY

OFFICERS OF SECTION

Chairman—Everett L. Goar, Houston, Texas.

Vice Chairman—Francis Heed Adler, Philadelphia.

Secretary—Trygve Gundersen, Boston.

Executive Committee—Frederick C. Cordes, San Francisco; Derrick Vail, Chicago; Everett L. Goar, Houston, Texas.

Wednesday, June 23—9 a. m.

Chairman's Address (Lantern Demonstration).
Everett L. Goar, Houston, Texas.

Address.
John A. MacMillan, Montreal, Canada.

Retrolental Fibroplasia and Persistent Hyperplastic Primary Vitreous: Two Entities (Lantern Demonstration).
Algernon B. Reese, New York.
Theodore H. Ingalls, Southborough, Mass.

Treatment of Glaucoma Associated with Iridocyclitis.
Adolph Posner and Abraham Schlossman, New York.

The Use of Strips of Orbicularis Oculi Muscles in Surgery of the Eyelids (Lantern Demonstration).
William B. Clark, New Orleans.

Thursday, June 24—9 a. m.

Election of Officers

Verified Refraction (Lantern Demonstration).
S. Judd Beach, Portland, Maine.

Intraorbital Tumors.
Arnold W. Forrest, New York.

The Use of "D.F.P." (Diisopropyl Fluorophosphate) in Glaucoma: Evaluation of Results over a Three Year Period (Lantern Demonstration).
P. Robb McDonald and Irving H. Leopold, Philadelphia.

The Blind Spot Syndrome (Lantern Demonstration).
Kenneth C. Swan, Portland, Ore.

Friday, June 25—9 a. m.

Nonmedical Problems in Industrial Ophthalmology.
Ralph S. McLaughlin, Charleston, W. Va.

The Use of Streptomycin and Streptomycin plus "Promizole" in Experimental Ocular Tuberculosis (Lantern Demonstration).
Alan C. Woods, Baltimore.

A Method of Retrobulbar Anesthesia Which Produces an Associated Motor Block of the Extraocular Muscles (Lantern and Motion Picture Demonstration).
Harold Gifford Jr., Omaha.

Basic Principles of Ocular Muscle Surgery.
Watson Gailey, Bloomington, Ill.

A Further Exceedingly Delicate Test for Astigmatic Axis (Lantern Demonstration).
William H. Crisp, Denver, and George H. Stine, Colorado Springs, Colo.

SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

MEETS IN THORNE HALL, NORTHWESTERN UNIVERSITY

OFFICERS OF SECTION

Chairman—Fletcher D. Woodward, Charlottesville, Va.

Vice Chairman—John R. Simpson, Pittsburgh.

Secretary—J. Milton Robb, Detroit.

Executive Committee—Louis H. Clerf, Philadelphia; J. Mackenzie Brown, Los Angeles; Fletcher D. Woodward, Charlottesville, Va.

Wednesday, June 23—2 p. m.

Inhalation of Nebulized Aerosols in Office Practice (Lantern Demonstration).
David Davis, Washington, D. C.
Discussion to be opened by Alvan L. Barach, New York, and Maurice S. Segal, Boston.

The Symptomatic Elongated Styloid Process (Lantern Demonstration).
Watt W. Eagle, Durham, N. C.
Discussion to be opened by C. M. Kos, Iowa City, and O. E. Van Alyea, Chicago.

Rehabilitation of the Larynx in Cases of Bilateral Abductor Paralysis: A Report of the Past Four Years' Experience with the Open Approach to Arytenoidectomy for Relief of Bilateral Abductor Paralysis (Lantern Demonstration).
De Graaf Woodman, New York.
Discussion to be opened by Paul H. Holinger, Chicago, and Fletcher D. Woodward, Charlottesville, Va.

Differential Diagnosis of Oral Lesions (Lantern Demonstration).
Russell A. Sage, Indianapolis.
Discussion to be opened by Le Roy A. Schall, Boston, and Charles D. Blassingame, Memphis, Tenn.

Transtympanic Fenestration; the Final Technic. Fenestration and the Hydrodynamic Hypothesis: Its Practical Implications.
O. Popper, Johannesburg, South Africa.
Discussion to be opened by Douglas Carruthers, Sydney, Australia, and A. L. Juers, Chicago.

Thursday, June 24—2 p. m.

Executive Session

Election of Officers

Chairman's Address: A Medical Criticism of Automotive Engineering (Lantern Demonstration).
Fletcher D. Woodward, Charlottesville, Va.

The Management of Acute Laryngotracheobronchitis (Lantern Demonstration).
John R. Simpson, Pittsburgh.
Discussion to be opened by Louis H. Clerf, Philadelphia, and Paul H. Holinger, Chicago.

Laryngectomy: A Surgical Technic Which Promotes Rapid Healing (Lantern and Motion Picture Demonstration).
John B. Erich, Rochester, Minn.
Discussion to be opened by Henry B. Orton, Newark, N. J., and Le Roy A. Schall, Boston.

Lymphoid Eustachian Salpingitis: Selective Criteria for Radiation Therapy (Lantern Demonstration).
J. Brown Farrior, Tampa, Fla.
Discussion to be opened by Gilbert E. Fisher, Birmingham, Ala., and John R. Lindsay, Chicago.

Blast Injuries to the Ear (Texas City Disaster).

George S. McReynolds, Fred R. Guilford and G. R. Chase, Galveston, Texas.

Discussion to be opened by John S. Knight, Kansas City, Mo., and Paul A. Campbell, Chicago.

Friday, June 25—2 p. m.

Surgery of the Chronic Ear by the Endaural Approach (Motion Picture Demonstration).

Howard P. House, Los Angeles.

Discussion to be opened by John F. Tolan, Seattle, and James E. Croushore, Detroit.

The Interpretation of Hearing Tests (Lantern Demonstration).

Stacy R. Guild, Baltimore.

Discussion to be opened by A. C. Furstenberg, Ann Arbor, Mich., and L. R. Boies, Minneapolis.

The Sphenopalatine Ganglion: Anatomy, Function and Symptomatology (Lantern Demonstration).

David R. Higbee, San Diego, Calif.

Discussion to be opened by William E. Grove, Milwaukee, and W. Likely Simpson, Memphis, Tenn.

Cancer of the Larynx: Five Year End Results in Series of Five Hundred Cases, with Special Study of Those Developing Recurrence or Metastasis (Lantern Demonstration).

Chevalier L. Jackson, John V. Blady, Charles Norris and Walter Maloney, Philadelphia.

Discussion to be opened by Gordon B. New, Rochester, Minn., and Hayes Martin, New York.

SECTION ON PEDIATRICS

MEETS IN AUDITORIUM, NAVY PIER (ROOM 6)

OFFICERS OF SECTION

Chairman—Oscar Reiss, Los Angeles.

Vice Chairman—Stanley Gibson, Chicago.

Secretary—Margaret Mary Nicholson, Washington D.C.

Executive Committee—John Aikman, Rochester, N. Y.; Gilbert J. Levy, Memphis, Tenn.; Oscar Reiss, Los Angeles.

Wednesday, June 23—9 a. m.

American Q Fever, (Lantern Demonstration).

R. J. Huebner, W. L. Jellison and M. Dorothy Beck, Hondo, Calif.

Primary Virus Pneumonia in Infants (Lantern Demonstration).

John M. Adams, Minneapolis.

Discussion to be opened by C. B. Conklin, Washington, D. C.

Virus Encephalitis (Lantern Demonstration).

Russell J. Blattner, Houston, Texas.

Discussion to be opened by Herbert A. Wenner, Kansas City, Kan.

Clinical Manifestations of Infection with Poliomyelitis Virus.

Albert E. Casey, Birmingham, Ala., and William I. Fishbein, Francis B. Gordon and Frank M. Schabel Jr., Chicago, under the direction of Herbert N. Bundesen, Chicago.

Enteral Treatment of Diarrhea in Infancy (Lantern Demonstration).

Edward Scott O'Keefe, Lynn, Mass.

Reaction to Whooping Cough Vaccination.

John A. Toomey, Cleveland.

Thursday, June 24—9 a. m.

Election of Officers

Epilepsy in Childhood (Lantern Demonstration).

M. G. Peterman, Milwaukee.

The Reduction and Prevention of Poisoning Accidents in Children (Lantern Demonstration).

John Aikman, Rochester, N. Y

Jet Injection in Pediatric Practice (Lantern Demonstration).

James G. Hughes, Robert G. Jordan and Fontaine S. Hill, Memphis, Tenn.

Discussion to be opened by Robert A. Hingson, Memphis, Tenn.

The Class Room as a Factor in Growth Deviation.

Darell Boyd Harmon, Austin, Texas.

Aplastic Anemia in Children, Report of a Case with Treatment by Splenectomy.

Arthur F. Abt, Chicago.

Streptomycin Therapy in Tuberculous Meningitis (Lantern Demonstration).

Abraham Levinson, Chicago.

Discussion to be opened by William S. Hoffman, Chicago.

Newer Concepts of the Etiology and Management of Idiopathic Ulcerative Colitis (Lantern Demonstration)

Sidney A. Portis, Chicago

Friday, June 25—9 a. m.

JOINT MEETING WITH SECTION ON OBSTETRICS AND GYNECOLOGY

Panel Discussion on Fetal Anoxia at Birth (Cyanosis of the Newborn).

C. Anderson Aldrich, Rochester, Minn., Moderator.

Physiologic Background of Fetal Anoxia at Birth.

Clement A. Smith, Boston.

Prevention of Fetal Anoxia at Birth (Lantern Demonstration).

Nicholson J. Eastman, Baltimore.

Differential Diagnosis and Management of Fetal Anoxia at Birth.

Stewart H. Clifford, Boston.

Pathology of Conditions in Which Fetal Anoxia at Birth is an Outstanding Feature. (Lantern Demonstration).

W. W. Zuelzer, Detroit.

Rh Negative Offspring of Immunized Mothers (Lantern Demonstration).

Edwin L. Kendig, Richmond, Va.

Discussion to be opened by Herbert F. Traut, San Francisco; S. A. Cosgrove, Jersey City, N.J., and J. Buren Sidbury, Wilmington, N.C.

Emergencies Encountered in the Neonatal Period (Lantern Demonstration).

M. Hines Roberts, Atlanta, Ga.

Discussion to be opened by Fred L. Adair, Chestertown, Ind., and Nina A. Anderson, Cincinnati.

Ovarian Tumors in Childhood (Lantern Demonstration).

Harold W. Dargeon, New York.

Discussion to be opened by Goodrich C. Schauffler, Portland, Ore.

SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

MEETS IN ROOM 4, NAVY PIER

OFFICERS OF SECTION

Chairman—Walter Bauer, Boston.

Vice Chairman—Dwight L. Wilbur, San Francisco.

Secretary--Carl V. Moore, St. Louis

Executive Committee—E. V. Allen, Rochester, Minn.; Carl A. Dragstedt, Chicago; Walter Bauer, Boston.

Wednesday, June 23--9 a.m.

Fat in Parenteral Nutrition (Lantern Demonstration).
Frederick J. Stare, Boston

Antibody Response in Patients with Hypoproteinemia, with Special Reference to the Effect of Protein Hydrolysate Supplementation (Lantern Demonstration).
Michael G. Wohl, John G. Reinhold, S. Brandt Rose, L. Ashby Adams and Wells F. Harvey, Philadelphia.

Clinical Significance of the Electrolyte Composition of Sweat in Abnormalities of Adrenal Cortical Function (Lantern Demonstration).
Jerome W. Conn, Ann Arbor, Mich.

The Specific Treatment of Brucellosis with a Combination of Streptomycin and a Sulfonamide Compound (Lantern Demonstration).
Wesley W. Spink, Wendell H. Hall, James M. Shaffer and Abraham I. Braude, Minneapolis.

Studies Concerning Oral Penicillin in Patients with Rheumatic Fever (Lantern Demonstration).
Benedict F. Massell, James W. Dow and T. Duckett Jones, Boston.

New Penicillin Products for Sustained Effects (Lantern Demonstration).
Leo Loewe, Albert E. Sobel and Erna Alturr-Werber, Brooklyn.

Thursday, June 24--9 a.m.

Election of Officers

Chairman's Address (Lantern Demonstration).
Walter Bauer, Boston.

The Cure of Recurrent Vivax Malaria with Pentaquine (Lantern Demonstration).
L. T. Coggeshall, Chicago.

Treatment of Hemophilia with Plasma Fraction I (Lantern Demonstration).
Louis K. Diamond, Boston.

Studies on the Circulation with the Use of Radioactive Tracers.
Myron Prinzmetal, Beverly Hills, Calif.

The Influence of "Dibenamine" on the Function of the Sympathetic Nervous System in Man.
Hans H. Hecht and Ferne S. Focht, Salt Lake City.

Friday, June 25--9 a.m.

JOINT MEETING WITH SECTION ON INTERNAL MEDICINE

Report of Committee for the Evaluation of the Use of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction (Lantern Demonstration).
Irving S. Wright, Chairman, and Charles D. Marple, Executive Secretary of Committee, New York.

Pathogenesis of Arterial Hypertension.
Irvine H. Page, Cleveland.

Psychologic Aspects of Arterial Hypertension.
George Saslow, St. Louis.

Laboratory Studies in Man of Drugs Recently Introduced for the Relief of Essential Hypertension (Lantern Demonstration).
Robert W. Wilkins, Boston.

The Effect of Low Salt Diets on Arterial Hypertension: A Comparison of the Effects of Low Salt and Rice Diets in the Treatment of Arterial Hypertension (Lantern Demonstration).
Henry A. Schroeder, St. Louis.

Review of Fifteen Years' Experience with Sympathectomy in the Treatment of Hypertension at Massachusetts General Hospital.
Kenneth A. Evelyn, London, Ontario, Canada.

SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN ROOM 4, NAVY PIER

OFFICERS OF SECTION

Chairman--Alvin G. Foord, Pasadena, Calif.

Vice Chairman--George E. Wakerlin, Chicago.

Secretary--Edwin F. Hirsch, Chicago

Executive Committee--Virgil H. Moon, Philadelphia; J. J. Moore, Chicago; Alvin G. Foord, Pasadena, Calif.

Wednesday, June 23--2 p.m.

Hypertension (Lantern Demonstration).
George E. Wakerlin, Chicago

Discussion to be opened by Louis N. Katz, Chicago, and Caroline C. B. Thomas, Baltimore.

Bright's Disease (Lantern Demonstration).
E. T. Bell, Minneapolis.

Recent Advances in Nutrition.
Ancel Keys, Minneapolis.

Discussion to be opened by J. B. Youmans, Chicago, and Tom D. Spies, Birmingham, Ala

Clinical Problems in Fluid Balance (Lantern Demonstration).
Edward Muntwyler, Brooklyn.

Discussion to be opened by W. S. Hoffman and D. A. MacFadyen, Chicago.

Thursday, June 24--2 p.m.

Election of Officers

Disorders of the Liver (Lantern Demonstration)
H. T. Karsner, Cleveland

Discussion to be opened by H. P. Popper and Richard B. Capps, Chicago.

Cancer Problems in Practice (Lantern Demonstration).
Stanley P. Reimann, Philadelphia.

Discussion to be opened by J. J. Moore and J. P. Simonds, Chicago.

Recent Advances in Gastrointestinal Physiology (Lantern Demonstration).
J. E. Thomas, Philadelphia.

Discussion to be opened by A. C. Ivy and Heinrich Necheles, Chicago.

New Developments in Endocrinology (Lantern Demonstration).
Warren O. Nelson, Iowa City.

Discussion to be opened by A. J. Carlson and S. Soskin, Chicago.

Friday, June 25--2 p.m.

Chairman's Address: Embolism in Coronary Heart Disease (Lantern Demonstration).
Alvin G. Foord, Pasadena, Calif.

Hippocrates and the Beanstalk (Lantern Demonstration).
Philip R. White, Philadelphia.

The Pathogenesis of Toxoplasmosis (Lantern Demonstration).
J. K. Frenkel, San Francisco

Cholesterol Metabolism and Its Relation to Atherosclerosis, Coronary Artery Disease, and Arteriosclerosis (Lantern Demonstration).
Chaney and William Gonzales, Los Angeles.

The Mechanism of Streptomycin Action in Tuberculosis (Lantern Demonstration).
Harry J. Corper and Maurice L. Cohn, Denver.

SECTION ON NERVOUS AND MENTAL DISEASES

MEETS IN ROOM 3, NAVY PIER

OFFICERS OF SECTION

Chairman--A. R. Vonderahe, Cincinnati.

Vice Chairman--William A. Smith, Atlanta, Ga.

Secretary--Frederick P. Moersch, Rochester, Minn.

Executive Committee--Perciva1 Bailey, Chicago; Roland P. Mackay, Chicago; A. R. Vonderahe, Cincinnati.

Wednesday, June 23--9 a.m.

Present Day Status of Medical Psychologic Aspects of Alcoholism.
Robert V. Seliger, Baltimore.

Psychiatric Problems in a Thyroid Clinic.
John C. Whitehorn and Theodore Lidz, Baltimore.

Analysis of Treatment in a Psychosomatic Clinic (Lantern Demonstration).
H. S. Ripley and Stewart G. Wolf, New York.

Psychosomatic Studies in Narcolepsy (Lantern Demonstration).
H. C. Modlin, Topeka, Kan., and H. H. Jasper and W. D. Ross, Montreal, Canada.

Psychiatry in Clinical Medicine.
Howard P. Rome, Rochester, Minn.

Congenital Universal Indifference to Pain (Lantern and Motion Picture Demonstration).
David A. Boyd Jr. and Louis W. Nie, Indianapolis.

Experience with Electronarcosis (Lantern Demonstration).
Douglas Goldman, Cincinnati.

Thursday, June 24--9 a.m.

Business Meeting

Election of Officers

Chairman's Address: Neuroanatomy and Its Relationship to the Medical Sciences.
A. R. Vonderahe. Cincinnati.

Cerebellar Seizures Experimentally Elicited (Lantern Demonstration).
Sam L. Clark, Nashville, Tenn.

Angiography in the Diagnosis and Treatment of Cerebral Hemorrhage (Lantern Demonstration).
I. S. Wechsler and Sidney W. Gross, New York.

The Specific Therapy of Bacterial Infections of the Central Nervous System (Lantern Demonstration).
Harry F. Dowling, Washington, D. C.

Cerebral Changes in Diabetes Mellitus (Lantern Demonstration).
Russell N. DeJong, Ann Arbor, Mich.

The Symptomatic Treatment of Certain Types of Headaches (Lantern Demonstration).
Arnold P. Friedman, Charles Brenner and Sidney Carter, New York.

Friday, June 25--9 a.m.

Congenital Dermal Sinuses as a Cause of Meningitis, Intraspinal Abscess and Intracranial Abscess (Lantern Demonstration).
Lester A. Mount, New York

Interruption of the Sympathetic Nerve Supply to the Brain: Effect on Parkinson's Syndrome.
W. James Gardner and Guy H. Williams, Cleveland.

Frontal Lobotomy for Intractable Pain.
John B. Dynes and James L. Poppen, Boston.

Sciatica After Three to Eight Years (Lantern Demonstration).
Dean H. Echols, New Orleans.

Studies of Intracranial Tumors Employing Radioactive Isotopes: I. Concentration of P^{32} by Cerebral Tumors (Lantern Demonstration).
Bertram Selverstone and A. K. Solomon, Boston.

Scoliosis as a Manifestation of Disease of the Spinal Cord (Lantern Demonstration).
Edwin B. Boldry, John E. Adams and Howard A. Brown, San Francisco.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

MEETS IN ROOM 1, NAVY PIER

OFFICERS OF SECTION

Chairman—Henry E Michelson, Minneapolis.

Vice Chairman—Carroll S. Wright, Philadelphia

Secretary—Clinton W Lane, St. Louis

Executive Committee—Clyde L. Cummer, Cleveland; Nelson Paul Anderson, Los Angeles; Henry E. Michelson, Minneapolis

Wednesday, June 23--9 a.m.

Chairman's Address: Criteria for the Diagnosis of Certain Tuberculoderms (Lantern Demonstration).
Henry E. Michelson, Minneapolis.

The Clinical Value of the Kveim Test in Sarcoidosis.
Carl T. Nelson, New York.

A Histologic Comparison of Micropapular Tuberculid and Rosacea (Lantern Demonstration).
Carl W. Laymon and Eugene P. Schoch Jr., Minneapolis.

Textile Dermatitis in Males.
G.A. Grant Peterkin, Edinburgh, Scotland.

Contact Dermatitis of the Hands: Localization as a Means of Causative Diagnosis (Lantern Demonstration).
George L. Waldbott, Detroit.

Dermatitis of the Hands Due to Ingested Allergens.
Bernard H. Winston, Kansas City, Mo.

Some Practical Aspects of Gross Sensitization in Allergic Eczematous Dermatitis (Lantern Demonstration).
Rudolf L. Baer, New York.

Thursday, June 24--9 a.m.

Election of Officers

Present Status of Dermatologic Training.
Francis E. Senear, Chicago, and George M. Lewis and Frank E. Cormia, New York.

The Distinguished Lecture in Dermatology: Cutaneous Manifestations of Some Tropical Diseases (Lantern Demonstration).
Howard Fox, New York.

The Culture and Identification of Fungi as an Office Procedure (Lantern Demonstration).
J. Walter Wilson, Los Angeles.

Manual Epilation in the Treatment of Tinea Capitis (Lantern Demonstration).
John F. Wilson, Philadelphia.

Prevention of Syphilis: Treatment of Contacts During the Incubation Stage with Penicillin in Oil and Beswax; Bismuth Ethyl Camphorate and Oxophenarsine Hydrochloride (Lantern Demonstration).
Lee J. Alexander and Arthur G. Schoch, Dallas, Texas.

Essential Hirsutism, Dermatologic and Endocrine Considerations (Lantern Demonstration).
J. Lamar Callaway and E.C. Hamblen, Durham, N.C.

The Genetics of Xanthoma Tuberosum Multiplex (Lantern Demonstration).
Maurice T. Fliegelman, Charles F. Wilkinson Jr. and Eugene A. Hand, Ann Arbor, Mich.

Ehlers-Danlos Syndrome (Lantern Demonstration).
Sture A. Johnson, Madison, Wis., and Harold F. Falls, Ann Arbor, Mich.

Friday, June 25--9 a.m.

Pruritus Ani et Vulvae: Further Observations and Studies in Series of Five Hundred Patients (Lantern Demonstration).
W. Howard Hailey, Atlanta, Ga.

Management of the Emotional Factors in Localized Neurodermatitis.
W.R. Huebler, Youngstown, Ohio.

The Psychologic and Emotional Factors in Skin Diseases.
A.H. Gottesman and Karl A. Menninger, Topeka, Kan.

Rickettsialpox: A Systemic Disease with Dermatologic Manifestations (Lantern Demonstration).
John F. Daly, New York.

Porphyric Bullous Dermatosis (Lantern Demonstration).
Israel Zeligman, Baltimore.

Comparison of Bacitracin with Other Remedies for Local Pyogenic Infections (Lantern Demonstration).
J. Lowry Miller, New York.

The Treatment of Herpes Zoster Ophthalmicus with Convalescent Blood Serum (Lantern Demonstration).
Frederick T. Becker, Duluth, Minn.

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

OFFICERS OF SECTION

Chairman—Robert H. Riley, Baltimore.

Vice Chairman—Oscar A. Sander, Milwaukee.

Secretary—Rutherford T. Johnstone, Los Angeles.

Executive Committee—E.L. Stebbins, Baltimore; Clarence O. Sappington, Chicago; Robert H. Riley, Baltimore.

Wednesday, June 23—2 p.m.

JOINT MEETING WITH SECTION ON GENERAL PRACTICE OF MEDICINE IN ROOM 2, NAVY PIER

Diagnosis and Treatment of Occupational Metal Poisoning.
Leonard Greenburg, New York.

Lead:

The Differential Diagnosis of Lead Poisoning: Accepted Laboratory Criteria (Lantern Demonstration).
Elston L. Belknap, Milwaukee.

The Treatment of Lead Poisoning. (Should One Attempt to "Store Lead" or to "Delead"?) (Lantern Demonstration).
William C. Wilentz, Perth Amboy, N.J.

The Industrial Solvents:

Their Physiologic Effect (Lantern Demonstration).
John H. Foulger, Wilmington, Del.

Diagnosis and Treatment.
Rex H. Wilson, Akron, Ohio.

The Pneumoconioses: Which Industrial Dusts Are Inert? Which are Harmful? Why (Lantern Demonstration)?
L. E. Hamlin, Chicago.

Common Occupational Skin Diseases (Lantern Demonstration).
Nelson Paul Anderson, Los Angeles.

PANEL DISCUSSION AND QUESTION AND ANSWER PERIOD, AUDIENCE PARTICIPATION, WITH R. T. JOHNSTONE, LOS ANGELES, AS MODERATOR AND THE CONTRIBUTORS TO THE JOINT PROGRAM AND DR. OSCAR A. SANDER, MILWAUKEE, AS SPEAKERS.

Thursday, June 24--2 p.m.

MEETS IN ROOM 5, NAVY PIER

Election of Officers

Chairman's Address.
Robert H. Riley, Baltimore

Discussion of a Proposal for a Specialty Board.
E. L. Stebbins, Baltimore.

Clinical Recovery in Advanced Pulmonary Tuberculosis Induced by Total Lung Rest in the Immobilizing Lung Chamber (Lantern Demonstration).

Alvan L. Barach, C. F. Herben, J. H. Cullen and A. Chesmore Eastlake Jr., New York.

Discussion to be opened by G. L. Bellis, Winnebago, Wis.

Official Medical Investigation of Death in the Interest of Public Safety (Lantern Demonstration).
Alan R. Moritz, Boston.

The Virginia Medical Examiner System: The Coroner vs. the State Medical Examiner.
Herbert S. Breyfogle, Richmond, Va.

A Public Health Approach to the Problem of Home Accidents During the Preschool Period.
Edward R. Schlesinger, Albany, N.Y.

Friday, June 25--9 a.m.

JOINT MEETING WITH SECTION ON RADIOLOGY
IN BOULEVARD ROOM, SHERATON HOTEL

*SYMPOSIUM ON THE NEWER ASPECTS
OF CERTAIN OCCUPATIONAL
DUST DISEASES*

Beryllium

Chemical and Clinical Aspects (Lantern Demonstration).
Willard F. Machle, New York.

Pathologic Aspects (Lantern Demonstration).
Arthur J. Vorwald, Saranac, N. Y.

Radiologic Aspects
Stanley A. Wilson, Salem, Mass.

Diatomite Pneumoconiosis (Diatomaceous Earth)

Clinical Aspects.
Walter M. Anderson, Lompoc, Calif.

Pathologic Aspects.
William H. Carnes, Baltimore.

Radiologic Aspects (Lantern Demonstration).
Reginald H. Smart, Los Angeles.

Bauxite (Shaver's Disease)

Chemical and Physical Factors.
C. M. Jephcott, Niagara, Canada

Pathologic Aspects.
A. R. Riddell, Toronto, Canada.

Clinical and Radiologic Aspects (Lantern Demonstration).
C. G. Shaver, Niagara, Canada.

PANEL DISCUSSION, QUESTION AND ANSWER PERIOD, WITH AUDIENCE PARTICIPATION, WITH ARTHUR J. VORWALD, SARANAC, N. Y., AS MODERATOR AND THE CONTRIBUTORS TO THE JOINT PROGRAM AS SPEAKERS.

SECTION ON UROLOGY

MEETS IN ROOM 1, NAVY PIER

OFFICERS OF SECTION

Chairman—Reed M. Nesbit, Ann Arbor, Mich.

Vice Chairman—Earl E. Ewert, Boston.

Secretary—Edward N. Cook, Rochester, Minn.

Executive Committee—Arbor D. Munger, Lincoln, Neb ; Grayson Carroll, St. Louis; Reed M. Nesbit, Ann Arbor, Mich.

Wednesday, June 23—2 p.m.

Effect of Nephrectomy on Hypertension in Unilateral Renal Disease.
Eugene B. Vickery, New Orleans.

Lower Nephron Nephrosis (Lantern Demonstration).
Rex E. Van Duzen, Dallas, Texas.
Discussion to be opened by Clarence V. Hodges, Baltimore, and Harry Culver, Chicago.

The Treatment of Hypospadias (Lantern Demonstration).
Fred Z. Havens, Rochester, Minn., and Albert S. Black, Omaha.
Discussion to be opened by C.D. Creevy, Minneapolis, and David M. Davis, Philadelphia.

The End Results of Endovesical Treatment of Tumors of the Bladder.
John E. Dees, Durham, N.C.

The Preoperative and Postoperative Management of Patients Undergoing Ureteral Intestinal Anastomosis (Lantern Demonstration).
Rubin H. Flocks, Iowa City.

Urologic Complications Following Abdominal Perineal Resection.
Edward W. Campbell and G. J. Gislason, Philadelphia.

Vesical Calculus, with Report of a Gigantic Stone in the Female Bladder (Lantern Demonstration).
William N. Wishard Jr. and Myron Nourse, Indianapolis.
Discussion on papers of Drs. Campbell and Gislason and Drs. Wishard and Nourse to be opened by George H. Ewell, Madison, Wis., and Temple Ainsworth, Jackson, Miss.

Thursday, June 24—2 p.m.

Election of Officers

Chairman's Address (Lantern Demonstration).
Reed M. Nesbit, Ann Arbor, Mich.

Carcinoma Cells in Prostatic Secretion (Lantern Demonstration).
Donald D. Albers, John R. McDonald and Gershom J. Thompson, Rochester, Minn.
Discussion to be opened by Russell D. Herrold, Chicago.

Modified Technic in Suprapubic Prostatectomy (Lantern Demonstration).
O.A. Nelson, Seattle.

Retropubic Prostatectomy (Lantern and Motion Picture Demonstration).
Francis P. Twinem and Francis A. Beneventi, New York.

Status of Perineal Prostatectomy Today. (Lantern Demonstration).
Daniel R. Higbee, Denver.

An Evaluation of Transurethral Resection for Prostatic Hypertrophy (Lantern Demonstration).
John A. Taylor and Charles H. Place, New York.
Discussion to be opened by Henry Mortenson, Melbourne, Australia; Grayson Carroll, St. Louis; Vincent J. O'Conor, Chicago, and Nels F. Ockerblad, Kansas City, Mo.

Friday, June 25—2 p.m.

Muscle Transplant for Neurogenic Incontinence.
Earl E. Ewert, Boston.

Repair of Vesicovaginal Fistula. (Lantern Demonstration).
Roger W. Barnes and Ivan E. Martin, Los Angeles.

Vesicointestinal Fistulas (Lantern Demonstration).
John K. Ormond, John W. Best and Milton E. Klinger, Detroit.
Discussion on papers of Dr. Ewert, Drs. Barnes and Martin and Drs. Ormond, Best and Klinger to be opened by Hart M. Stang, Eau Claire, Wis.

Studies in Polycystic Renal Disease (Lantern Demonstration).
A. E. Goldstein, Baltimore.

Massive Retroperitoneal Tumors (Lantern Demonstration).
Robert W. Hunt, New York.

SECTION ON ORTHOPEDIC SURGERY

MEETS IN ROOM 3, NAVY PIER

OFFICERS OF SECTION

Chairman-J. Warren White, Greenville, S. C.

Vice Chairman-David M. Bosworth, New York.

Secretary-Joseph S. Barr, Boston.

Executive Committee-Theodore A. Willis, Cleveland; Francis M. McKeever, Los Angeles; J. Warren White, Greenville, S. C.

Wednesday, June 23-2 p. m.

Symposium on Foot Disabilities

F. D. Dickson, Kansas City, Mo., Chairman

Congenital Foot Variations: Their Influence in Clinical Disorders.
Dudley J. Morton, New York.
Discussion to be opened by R. I. Harris, Toronto, Canada.

Treatment of Congenital Deformities of the Feet in Infancy (Lantern Demonstration).
J. H. Kite, Atlanta, Ga.
Discussion to be opened by John L. McDonald, Toronto, Canada.

Treatment of Functional Disorders of the Foot in Childhood (Lantern Demonstration).
William T. Green, Boston.
Discussion to be opened by J. E. M. Thomson, Lincoln, Neb.

Conservative Treatment of Functional Disorders of the Foot in the Adolescent and Adult.
R. Plato Schwartz, Rochester, N. Y.
Discussion to be opened by Philip Lewin, Chicago.

Operative Treatment of Foot Imbalance in the Adolescent (Lantern Demonstration).
Halford Hallock, New York.
Discussion to be opened by J. Warren White, Greenville, S. C.

Operative Treatment of Deformities of the Feet in Adults (Lantern Demonstration).
Charles W. Peabody, Detroit.
Discussion to be opened by Earl D. McBride, Oklahoma City.

Thursday, June 24-2 p. m.

Election of Officers

Acromioclavicular Dislocation (Lantern Demonstration).
Boardman M. Bosworth, Bronxville, N. Y.

Arthroplasty of the Hip: Study of End Result (Lantern Demonstration).
Frank E. Stinchfield, New York.

Chairman's Address (Lantern Demonstration).
J. Warren White, Greenville, S. C.

Effect of Diathermy (Short Wave and Microwave) on Bone Growth in the Albino Rat (Lantern Demonstration).
Charles S. Wise, Washington, D. C., and Benjamin Castleman and Arthur L. Watkins, Boston.

Some Pathologic and Clinical Aspects of Low Back Pain.
Sten Friberg, Stockholm, Sweden.

Friday, June 25-2 p. m.

Intracapsular Fracture of the Neck of the Femur in Children (Lantern Demonstration).
Russell F. Sullivan, Brookline, Mass.

Comminuted Fractures of the Os Calcis: Choice of Treatment (Lantern Demonstration).
E. O. Geckeler, Philadelphia.

Architectural Principles in Arthrodesis.
H. A. Brittain, Norwich, England.

Radiocarpal Arthrodesis of the Wrist Using Iliac Bone Grafts (Lantern Demonstration).
I. S. McReynolds, Houston, Texas.

The Use of Capsulectomy and Arthroplasty for Limitation of Finger Motion (Lantern Demonstration).
Frederick L. Liebolt, New York.
Discussion to be opened by James P. Cole, Buffalo, and William G. Rhorer, Long Beach, Calif.

Study of End Result in Two Hundred Cases of Triple Arthrodesis of the Foot (Lantern Demonstration).
Edward J. Ferrarone and Garry deN. Hough Jr., Springfield, Mass.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

MEETS IN ROOM 5, NAVY PIER

OFFICERS OF SECTION

Chairman—Sara M. Jordan, Boston.

Vice Chairman—William H. Daniel, Los Angeles.

Secretary—Grant H. Laing, Chicago.

Executive Committee—J. A. Bargen, Rochester, Minn.; Martin S. Kleckner, Allentown, Pa.; Sara M. Jordan, Boston.

Wednesday, June 23—9 a.m.

Aren't We Still Missing Many Cases of Hiatus Hernia?
G. Gill Richards and Kenneth A. Crockett, Salt Lake City.

Incidence of Hiatus Hernia and Associated Lesions Diagnosed by Roentgen Ray.
Irving B. Brick, Washington, D.C.

Differential Diagnosis of Diaphragmatic Hernia and Coronary Artery Disease (Lantern Demonstration).
Arthur M. Master, Simon Dack, Arthur Grishman and Jacob M. Stone, New York.
Discussion on papers of Drs. Richards and Crockett; Dr. Brick, and Drs. Master, Dack, Grishman and Stone to be opened by Edward L. Jenkinson and Ralph C. Brown, Chicago.

Heartburn (Lantern Demonstration).
Henry J. Tumen and Edwin M. Cohn, Philadelphia.
Discussion to be opened by David J. Sandweiss, Detroit.

Studies on the Mechanism of Postgastrectomy Syndrome (Lantern Demonstration).
David Adlersberg and Ernst Hammerschlag, New York.
Discussion to be opened by Ralph Colp, New York, and Joseph B. Kirsner, Chicago.

The Diagnosis of Gastric Neoplasm by Cytologic Examination of Gastric Secretions.
Malcolm Block and Henry C. Bryant, Ann Arbor, Mich.
Discussion to be opened by Warren C. Hunter, Portland, Ore.

A Study of the Routine Use of Screening for the Detection of Liver Disease (Lantern Demonstration).
William D. Gambill, John E. Fisher, Bernard D. Rosenak and Rollin H. Moser, Indianapolis.
Discussion to be opened by Hugh R. Butt, Rochester, Minn.

Needle Biopsy of the Liver (Lantern Demonstration).
Leon Schiff, S. A. Safdi, R. C. Cogswell, G. W. Kumpe, D. F. Richkield and E. A. Gall, Cincinnati.
Discussion to be opened by Frederick W. Hoffbauer, Minneapolis, and Hans P. Popper, Chicago.

Thursday, June 24—9 a.m.

Business Meeting

Election of Officers

Chairman's Address: Correlation of Gastroenterology and Surgery.
Sara M. Jordan, Boston.

Possible Hazards of Diets High in Cholesterol in Coronary Disease (Lantern Demonstration).
Milton Plotz, Brooklyn.
Discussion to be opened by Louis N. Katz, Chicago.

The Surgical Treatment of Ulcerative Colitis (Lantern Demonstration).
Garnet W. Ault, Washington, D.C.
Discussion to be opened by Joseph Bank, Phoenix, Ariz.

Treatment of Idiopathic Ulcerative Colitis by Means of a Medical Ileostomy and Orally Administered Protein Hydrolysate Solution (Lantern Demonstration).
Thomas E. Machella, Philadelphia.
Discussion to be opened by T. Grier Miller, Philadelphia, and Sidney A. Portis, Chicago.

A Study of the Development of Anal Ducts and Glands, with Particular Reference to the Pathogenesis of Anorectal Disease. (Lantern Demonstration).
Malcolm R. Hill, Carroll S. Small and Lee Richards, Los Angeles.
Discussion to be opened by Henry W. Cave, New York.

Lymphomas of the Anorectum (Lantern Demonstration).
Emil Granet, M. B. Kagan and Cyril Solomon, New York.
Discussion to be opened by Walter A. Fansler, Minneapolis, and Claude C. Tucker, Wichita, Kan.

The Diagnosis of Intestinal Helminth Infections (Lantern Demonstration).
Elmer H. Loughlin, Brooklyn.
Discussion to be opened by Norman R. Stoll, Princeton, N. J., and Donovan C. Browne, New Orleans.

Polypoid Lesions of the Terminal Portion of the Colon with Special Relationship to Fulguration (Lantern Demonstration).
John R. Hill and Louis A. Buie, Rochester, Minn.
Discussion to be opened by Martin S. Kleckner, Allentown, Pa.

Friday, June 25—9 a.m.

JOINT MEETING WITH SECTION ON SURGERY, GENERAL AND ABDOMINAL, IN BALLROOM, SHERATON HOTEL

Newer Aspects of the Treatment of Ulcer (Lantern Demonstration). A. H. Aaron, Buffalo.

Vagotomy (Lantern Demonstration).
Keith S. Grimson, R. W. Rundles, George J. Baylin and H. M. Taylor, Durham, N. C.
Discussion on papers of Dr. Aaron and Drs. Grimson, Rundles, Baylin and Taylor to be opened by Lester R. Dragstedt, Chicago; Francis D. Moore, Boston; A. C. Ivy, Chicago; Waltman Walters, Rochester, Minn., and Walter L. Palmer, Chicago.

Nonspecific Inflammatory Lesions of the Terminal Ileum and Colon.
Russell S. Boles, Philadelphia.

Nonspecific Inflammatory Lesions of the Small and Large Bowel (Lantern Demonstration).
Leland S. McKittrick, Boston.
Discussion on papers of Drs. Boles and McKittrick to be opened by Clarence Dennis, Minneapolis; Burrill B. Crohn, New York; Lester R. Dragstedt, Chicago, and Everett D. Kiefer, Boston.

Diagnosis of Carcinoma of the Colon and Rectum (Lantern Demonstration).
Neil W. Swinton, Hugh F. Hare and William A. Meissner, Boston.
Discussion to be opened by Harry M. Weber, Rochester, Minn., and William H. Daniel, Los Angeles.

SECTION ON RADIOLOGY

MEETS IN BOULEVARD ROOM, SHERATON HOTEL

OFFICERS OF SECTION

Chairman—W. Walter Wasson, Denver.

Vice Chairman—Harry M. Weber, Rochester, Minn.

Secretary—U. V. Portmann, Cleveland.

Executive Committee—Edwin C. Ernst, St. Louis; Bernard P. Widmann, Philadelphia; W. Walter Wasson, Denver.

Wednesday, June 23—9 a.m.

Business Session

Chairman's Address: What Further Contributions Can Radiology Make to Medicine?
W. Walter Wasson, Denver.

Intervertebral Foramen Studies (Lantern Demonstration).
Lee A. Hadley, Syracuse, N. Y.
Discussion to be opened by L. Henry Garland, San Francisco, and Ralph K. Ghormley, Rochester, Minn.

A Basic Analysis of the Obstetric Pelvis by Roentgen Study (Lantern Demonstration).
William Snow, New York.
Discussion to be opened by J. P. Greenhill, Chicago, and Howard P. Doub, Detroit.

Angiocardiographic Visualization of the Pulmonary Artery in Health and Disease (Lantern Demonstration).
Charles T. Dotter and Israel Steinberg, New York.
Discussion to be opened by Harry M. Weber, Rochester, Minn., and Fred J. Hodges, Ann Arbor, Mich.

Lymphosarcoma: Its Diagnosis and Treatment.
Maurice Lenz, A. Purdy Stout, Orville L. Henderson and Josephine Sherman Wells, New York.
Discussion to be opened by Edward L. Jenkinson, Chicago, and Edwin C. Ernst, St. Louis.

Address.
Ellis Berven, Stockholm, Sweden.

Thursday, June 24—9 a.m.

Business Session

Election of Officers

Treatment of Stage I Carcinoma of the Cervix by Intracavitary Radium: Five, Ten and Fifteen Year End Results.
Juliette Baud, Paris, France.

Discussion to be opened by Harry H. Bowing, Rochester, Minn., and A. N. Arneson, St. Louis.

Some Factors Influencing the Response of Cancer of the Mouth and Throat to Radiation.
Constance A. P. Wood, London, England.

Discussion to be opened by A. Purdy Stout and Douglas Quick, New York.

Cancer of the Pharynx and Larynx.
Francois Baclesse, Paris, France.

Discussion to be opened by Juan A. del Regato, Columbia, Mo., and Maurice Lenz, New York.

Treatment and Results in Cancer of the Breast.
Stanford Cade, London, England.

Discussion to be opened by U. V. Portmann, Cleveland, and Robert J. Reeves, Durham, N. C.

The Present Position of Radiotherapy in Medical Practice.
B. W. Windeyer, London, England.

Discussion to be opened by Robert E. Newell, San Francisco, and Frederick W. O'Brien, Boston.

Friday, June 25—9 a.m.

JOINT MEETING WITH SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

Symposium on the Newer Aspects of Certain Occupational Dust Diseases

Beryllium

Chemical and Clinical Aspects (Lantern Demonstration).
Willard F. Machle, New York.

Pathologic Aspects (Lantern Demonstration).
Arthur J. Vorwald, Saranac, N.Y.

Radiologic Aspects.
Stanley A. Wilson, Salem, Mass.

Diatomite Pneumoconiosis: (Diatomaceous Earth)

Clinical Aspects.
Walter M. Anderson, Lompoc, Calif.

Pathologic Aspects.
William H. Carnes, Baltimore.

Radiologic Aspects (Lantern Demonstration).
Reginald H. Smart, Los Angeles.

Bauxite (Shaver's Disease)

Chemical and Physical Factors.
C. M. Jephcott, Niagara, Canada.

Pathologic Aspects.
A. R. Riddell, Toronto, Canada.

Clinical and Radiologic Aspects (Lantern Demonstration).
C. G. Shaver, Niagara, Canada.

PANEL DISCUSSION AND QUESTION AND ANSWER PERIOD AUDIENCE PARTICIPATION, WITH ARTHUR J. VORWALD, SARANAC, N.Y., AS MODERATOR AND THE CONTRIBUTORS TO THE JOINT PROGRAM AS SPEAKERS.

SECTION ON ANESTHESIOLOGY

MEETS IN BOULEVARD ROOM, SHERATON HOTEL

OFFICERS OF SECTION

Chairman—Ralph M. Tovell, Hartford, Conn.

Vice Chairman—Stuart C. Cullen, Iowa City.

Secretary—John S. Lundy, Rochester, Minn.

Executive Committee—Ansel M. Caine, New Orleans; Charles F. McCuskey, Los Angeles; Ralph M. Tovell, Hartford, Conn.

Wednesday, June 23-2 p.m.

Business Meeting for Presentation of Resolutions for House of Delegates

Preliminary Report of Committee on Operative Mortality (Lantern Demonstration).
Henry S. Ruth, Haverford, Pa., and Frederick P. T. Haugen, Portland, Ore., Co-Chairmen.

Chairman's Address: Anesthesiology in the Veterans Administration (Lantern Demonstration).
Ralph M. Tovell, Hartford, Conn.

The Relationship of the Anesthesiologist to the Hospital.
James R. Miller, Hartford, Conn.

Discussion to be opened by Charles F. McCuskey, Los Angeles, and H. Boyd Stewart, Tulsa, Okla.

The Functions of the American Board of Anesthesiology Past, Present and Future (Lantern Demonstration).
Paul M. Wood, New York.

Discussion to be opened by Ralph M. Waters, Madison, Wis., and Philip D. Woodbridge, Reading, Pa.

Brachial Plexus Block Anesthesia (Lantern Demonstration).
John J. Bonica, Tacoma, Wash.; Daniel C. Moore, Seattle, and Morton Orlov, Tacoma.

Discussion to be opened by James H. Crowley, St. Paul, and Robert L. Patterson, Pittsburgh.

Thursday, June 24-2 p.m.

Business Meeting

Election of Officers

An Acoustic Gas Analyser for Research in Anesthesiology (Lantern Demonstration).
Albert Faulconer Jr., Rochester, Minn.

Discussion to be opened by Charles D. Anderson and Mary Karp, Chicago.

A Clinical Appraisal of Methadon ("Amidone") and Its Isomers.
Jane E. Denton, Oliver H. Straus and Henry K. Beecher, Boston.

Discussion to be opened by Lieutenant Scott Whitehouse (MC), U.S.N.R., and Major Charles H. Mitchell, Medical Corps, United States Army.

Anesthetic Complications During and Following Chest Surgery (Lantern Demonstration).
K. K. Keown, Philadelphia.

Discussion to be opened by W. O. McQuiston, Peoria, Ill., and Ansel M. Caine, New Orleans.

The Effects of Various Methods of Premedication and Technics of Anesthesia as related to the Minute Volume Exchange (Lantern Demonstration).
Howard A. Bennett, Oklahoma City, and Stuart C. Cullen, Iowa City.

Discussion to be opened by Curtiss B. Hickcox, Philadelphia, and Paul H. Lorhan, Mission, Kan.

Caudal Sympathetic Block: A Comparison with Lumbar Sympathetic Block (Lantern Demonstration).
G. W. Curry, Cleveland.
Discussion to be opened by Ivan B. Taylor, Detroit, and Stuart C. Cullen, Iowa City.

Friday, June 25-2 p.m.

Laboratory Studies with Radioactive "Pentothal" (Lantern Demonstration).
J. L. Bollman, Rochester, Minn.
Discussion to be opened by Richard K. Richards, Chicago, and Edward B. Tuohy, Washington, D. C.

Quantitative Pharmacologic Studies with "Pentothal": A Preliminary Report (Lantern Demonstration).
E. A. Rovenstine and E. M. Papper, New York.
Discussion to be opened by J. Eugene Ruben, Philadelphia, and J. E. Remlinger, Evanston, Ill.

Observations on the Use of "Pentothal Sodium" in Presence of Hepatic Damage.
Bruce M. Anderson, Oakland, Calif.
Discussion to be opened by W. Allen Conroy and Huberta M. Livingstone, Chicago.

"Dibenamine" Protection Against Cyclopropane Arrhythmias: Clinical Study with Continuous Electrocardiographic Recordings.
L. S. Goodman, H. O. Brown, Mark Nickerson and Scott M. Smith, Salt Lake City.
Discussion to be opened by A. E. Rapoport, Chicago, and R. J. Whitacre, East Cleveland, Ohio.

SECTION ON GENERAL PRACTICE OF MEDICINE

MEETS IN ROOM 2, NAVY PIER

OFFICERS OF SECTION

Chairman—Eric A. Royston, Los Angeles.

Vice Chairman—Milton B. Casebolt, Kansas City, Mo.

Secretary—Winfred B. Harm, Detroit

Executive Committee—Wingate M. Johnson, Winston-Salem, N.C.; Paul A. Davis, Akron, Ohio; Eric A. Royston, Los Angeles.

Wednesday, June 23—2 p.m.

JOINT MEETING WITH THE SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

Diagnosis and Treatment of Occupational Metal Poisoning.
Leonard Greenburg, New York.

Lead:

The Differential Diagnosis of Lead Poisoning: Accepted Laboratory Criteria (Lantern Demonstration).
Elston L. Belknap, Milwaukee.

The Treatment of Lead Poisoning (Should One Attempt to "Store Lead" or to "Delead"?)
William C. Wilentz, Perth Amboy, N.J.

The Industrial Solvents:
Their Physiologic Effect (Lantern Demonstration).
John H. Foulger, Wilmington, Del.

Diagnosis and Treatment (Lantern Demonstration).
Rex H. Wilson, Akron, Ohio.

The Pneumoconioses: Which Industrial Dusts Are Inert? Which are Harmful? Why (Lantern Demonstration)?
L. E. Hamlin, Chicago.

Common Occupational Skin Diseases (Lantern Demonstration).
Nelson Paul Anderson, Los Angeles.

PANEL DISCUSSION AND QUESTION AND ANSWER PERIOD, AUDIENCE PARTICIPATION, WITH R. T. JOHNSTONE, LOS ANGELES, AS MODERATOR, AND THE CONTRIBUTORS TO THE JOINT PROGRAM AND OSCAR A. SANDER, MILWAUKEE, AS SPEAKERS.

Thursday, June 24—2 p. m.

Election of Officers

Chairman's Address: The Renaissance of the General Practitioner.
Eric A. Royston, Los Angeles.

Extraocular Malignant Melanoblastoma: A Clinical Study (Lantern Demonstration).
Marion S. Deweese, Ann Arbor, Mich.
Discussion to be opened by Udo J. Wile, Ann Arbor, Mich.

The Private Physician and Preventive Medicine (Lantern Demonstration). Bruce H. Douglas, Detroit.
Discussion to be opened by Paul A. Davis, Akron, Ohio.

The Diagnostic Significance of Failing Vision.
Lawrence T. Post, St. Louis.
Discussion to be opened by Paul O. Hageman, St. Louis.

The Nervous Factor in General Practice (Lantern Demonstration).
Frank N. Allan and Manuel Kaufman, Boston.
Discussion to be opened by John B. Dynes, Boston.

Friday, June 25-2 p. m.

The Do's and Don'ts of the Acute Abdomen.
Philip Thorek, Chicago.
Discussion to be opened by John Van Probaska, Chicago.

The Present Status of the Peptic Ulcer Problem (Lantern Demonstration).
S. Allen Wilkinson, Boston.

The Present Status of the Peptic Ulcer Problem.
S. Allen Wilkinson, Boston.
Discussion to be opened by Wingate M. Johnson, Winston-Salem, N. C.

Rheumatoid Spondylitis: Its Early Diagnostic Features and Management (Lantern Demonstration).
Richard Z. Query Jr., Charlotte, N. C.
Discussion to be opened by Edward F. Rosenberg, Chicago.

The Increase and Prolongation of Penicillin Plasma Concentration (Lantern Demonstration)
William P. Boger and Harrison F. Flippin, Philadelphia.
Discussion to be opened by Wallace E. Herrell, Rochester, Minn.

Diagnosis of Coarctation of the Aorta (Lantern Demonstration).
William L. Proudfit and A. Carlton Ernstene, Cleveland.
Discussion to be opened by O. T. Clagett, Rochester, Minn.

The Use and Misuse of Endocrine Therapy in Sterility (Lantem Demonstration).
Edward T. Tyler, Los Angeles.
Discussion to be opened by Willard O. Thompson, Chicago.

SECTION ON MISCELLANEOUS TOPICS

MEETS IN ROOM 2, NAVY PIER

Session on Allergy

OFFICERS OF SESSION

Chairman—Francis M. Rackemann, Boston.

Secretary—J. Harvey Black, Dallas, Texas.

Wednesday, June 23—9 a. m.

Chairman's Address.
Francis M. Rackemann, Boston.

Some Basic Facts and Problems of Clinical Allergy.
Frank A. Simon, Louisville, Ky.
Discussion to be opened by Jonathan Forman, Columbus, Ohio.

Climatotherapy in the Treatment of Allergic Diseases.
F. B. Schutzbank, Tucson, Ariz.
Discussion to be opened by L. O. Dutton, El Paso, Texas.

An Evaluation of Therapy in Infantile Eczema.
Lewis Webb Hill, Boston.
Discussion to be opened by A. V. Stoesser, Minneapolis.

Drug Allergy (Lantern Demonstration).
W. B. Sherman, New York.
Discussion to be opened by Marion B. Sulzberger, New York.

Immunologic and Morphologic Alterations in Hypersensitive States (Lantern Demonstration).
Gustave J. Dammin and Samuel C. Bukantz, St. Louis.
Discussion to be opened by Samuel M. Feinberg, Chicago.

Consideration of Water and Electrolyte Metabolism in Bronchial Asthma.
John M. Sheldon, Ann Arbor, Mich.
Discussion to be opened by John Warrick Thomas, Richmond, Va.

What Should the General Practitioner Do About Allergy?
Stearns S. Bullen, Rochester, N.Y.
Discussion to be opened by John H. Mitchell, Columbus, Ohio.

Diseases of the Chest

MEETS IN ROOM 2, NAVY PIER

OFFICERS OF SESSION

Chairman—Richard H. Overholt, Boston.

Secretary—J. Winthrop Peabody, Washington, D. C.

Thursday, June 24—9 a. m.

Laboratory Aspects of Streptomycin (Lantern Demonstration).
Emil Bogen, Los Angeles.

Streptomycin in Extrapulmonary Tuberculosis.
H. C. Hinshaw, Rochester, Minn.

Streptomycin in Treatment of Tuberculosis (Lantern Demonstration).
Karl Pfuetze, Cannon Falls, Minn.

Experience with Treatment of Various Forms of Tuberculosis with Streptomycin in Veterans Administration (Lantern Demonstration).
William Tucker, Minneapolis.

The Use of Streptomycin in Surgical Patients.
Edward J. Beattie, St. Louis.

Antibiotics in Relation to Nontuberculous Disease of the Chest.
Chester S. Keefer, Boston.

Session on History of Medicine

MEETS IN ROOM 2, NAVY PIER

OFFICERS OF SESSION

Chairman—Howard Dittrick, Cleveland.

Secretary—Josiah C. Trent, Durham, N. C.

Friday, June 25—9 a. m.

Rupture of the Invertebral Disk: A Short History of its Evolution as a Syndrome of Importance to the Surgeon (Lantern Demonstration).
William J. Mixter, Boston.

Continuous Suction Drainage in the Treatment of Intestinal Obstruction: A Historical Evaluation (Lantern Demonstration).
John R. Paine, Buffalo.

The Development of Intestinal Intubation as a Practical Clinical Procedure: Introduction of the Double Lumen Tube (Lantern Demonstration).
T. Grier Miller, Philadelphia.

Modern Historical Aspects of Peripheral Nerve Surgery (Lantern Demonstration).
Barnes Woodhall, Durham, N. C.

Recent Developments in Antithyroid Drugs.
E. B. Astwood, Boston.

The First Successful Pneumonectomy and its Historiical Significance. (Lantern Demonstration).
Rudolph Nissen, New York.

Session on Physical Medicine

MEETS IN ASSEMBLY ROOM, BUILDING OF THE AMERICAN MEDICAL ASSOCIATION

OFFICERS OF SESSION

Chairman—George Morris Piersol, Philadelphia.

Secretary—Frank H. Krusen, Rochester, Minn.

Thursday, June 24—9 a. m.

The Physical Treatment of the Hemiplegic Patient in General Practice (Lantern Demonstration).
Harold Dinken, Denver.

Therapeutic Possibilities of Microwaves ("Radar") (Lantern Demonstration).
Khalil G. Wakim, Julia F. Herrick, Gordon M. Martin, and Frank H. Krusen, Rochester, Minn.

Rehabilitation and General Practice.
Howard A. Rusk, New York.

Psychiatric Aspects of Physical Medicine.
Winfred Overholser, Washington, D. C.

Intermission

Panel Discussion on Physical Medicine in General Practice

George M. Piersol, Philadelphia, Moderator

Physical Treatment of Common Disorders of the Feet (Lantern Demonstration).
Frances Baker, San Francisco.

Physical Treatment of Backache (Lantern Demonstration).
Frederic J. Kottke, Minneapolis.

Physical Treatment of Peripheral Vascular Diseases.
Sedgwick Mead, St. Louis.

Physical Treatment of Shoulder Lesions (Lantern Demonstration).
Donald L. Rose, Kansas City, Kan.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit will be located on Navy Pier at the East end of the Convention Hall.

The seventeen sections of the Scientific Assembly have arranged groups of exhibits dealing with the various specialties of medicine, but these exhibits will be presented for the benefit of the physician in general practice rather than for the specialist. The Committee on Scientific Exhibit is sponsoring three special exhibits on fractures, physical medicine and fresh pathologic material; other subjects which will receive special attention are atomic energy, cancer and diabetes. Conferences on diabetes will be conducted in a room adjacent to the exhibit throughout the week. Motion pictures will be shown continously throughout the week in two theaters adjacent to the exhibit.

Admission to the Scientific Exhibit will be limited to persons wearing the Fellowship badge or other official badge of the Convention. The public will not be admitted to the Scientific Exhibit.

THOMAS G. HULL, Director,
Scientific Exhibit.

SPECIAL EXHIBITS

The Committee on Scientific Exhibit is sponsoring three special exhibits—fractures, fresh pathologic material and physical medicine.

Special Exhibit on Fractures

The Special Exhibit on Fractures is presented for the seventeenth time under the auspices of the following committee:

Kellogg Speed, Chicago, chairman.

Frederick A. Jostes, St. Louis.

Gordon M. Morrison, Boston.

The exhibit will be accompanied by continuous demonstrations throughout the week on the following subjects:

Compression Fracture of the Spine.

Fractures of the Ankle.

Fracture of the Carpal Navicular.

Fracture of the Lower End of the Radius.

Fracture of the Shaft of the Femur.

Supracondylar Fracture of the Humerus.

A pamphlet giving the essential features of the exhibit will be distributed.

The following orthopedic surgeons will assist the committee with the demonstrations:

Honald W. Adams, Boston.
Carroll Glenn Barber, Cleveland.
Richard J. Bennett Jr., Chicago.
Herbert L. Brumbaugh, Dayton, Ohio.
James J. Callahan, Chicago.
Kenneth Christoph, Brookline, Mass.
Carl B. Davis Jr., Chicago.
Arthur E. Diggs, Chicago.
Egbert H. Fell, Chicago.
Nicholas J. Giannestras, Cincinnati.
Harry B. Hall, Minneapolis.
E.A. Hamilton, Chicago.
Robert E. Ingersoll, Boston.
Burton C. Kilbourne, Chicago.
J. Whitfield Larrabee, Hartford, Conn.
John L. Lindquist, Chicago.
Robert T. McElvenny, Chicago
Robert R. McKnight, Tulsa, Okla.
John J. Milroy, Lake Forest, Ill.
Frank G. Murphy, Chicago.
Benjamin E. Obletz, Buffalo.

Manley A. Page, Chicago.
Charles N. Pease, Chicago.
Sheppard Hemington, Chicago.
John C. Richter Jr., Chicago.
Robert O. Ritter, Chicago.

Samuel L. Robbins, Cleveland.
Maurice B. Roche, St. Louis.
Carlo S. Scuderi, Chicago.
Harold A. Sofield, Chicago.
James K. Stack, Chicago.
Didley M. Stewart, Toledo, Ohio.
Russell F. Sullivan, Brookline, Mass.
James H. Tillotson, Lima, Ohio.
Samuel L. Turek, Chicago.
Vernon C. Turner, Evanston, Ill.
Theodore H. Vinke, Cincinnati.
Herbert W. Virgin Jr., Miami, Fla.
Kenneth H. Weston, Philadelphia.
Edgar White, Cincinnati.
Charles Francis Wood, Louisville.
Chester R. Zeiss, Chicago.

Special Exhibit on Fresh Pathologic Material

The Special Exhibit on Fresh Pathologic Material is presented with the cooperation of the Section on Pathology and Physiology under the auspices of the following committee:

I. Davidsohn, Mount Sinai Hospital, Chicago, chairman.

G.A. Bennett, University of Illinois College of Medicine, Chicago.

P.R. Cannon, University of Chicago School of Medicine, Chicago.

S.A. Levinson, University of Illinois College of Medicine, Chicago.

J.F. Sheehan, Loyola University School of Medicine, Chicago.

J.P. Simonds, Children's Memorial Hospital, Chicago.

W.B. Wartman, Northwestern University Medical School, Chicago.

An advisory committee has been appointed to assist the general committee, and includes the following members:

Alvin G. Foord, Pasadena, Calif.
George M. Hass, Chicago.
Edwin F. Hirsch, Chicago.
Frank W. Konzelmann, Atlantic City, N.J.
Harrison S. Martland, Newark, N.J.
J.J. Moore, Chicago.
Hans Popper, Chicago.
Otto Saphir, Chicago.

Demonstrations will be conducted from Monday morning to Friday noon from 10 a.m. to 1 p.m. and 1:30 to 4:30 p.m. Many of the hospitals in Chicago are cooperating, and fresh material of an interesting nature will be supplied daily. A large group of competent pathologists will aid in the program and conduct the demonstrations.

Special Exhibit on Physical Medicine

The Special Exhibit on Physical Medicine includes Physical Therapy, Occupational Therapy and Rehabilitation. It is presented for the third time under the auspices of the following committee:

Frank H. Krusen, Rochester, Minn., chairman.

Winfred Overholser, Washington, D. C.

Howard A. Rusk, New York.

J.F. HERRICK and E.J. BALDES, Mayo Foundation, Institute of Experimental Medicine, Rochester, Minn.:

Ultrasonics in Medicine: Devices for producing high frequency sound waves will be shown, and the possibilities for use of these waves in medicine will be indicated.

K.G. WAKIM and D.J. ERICKSON, Sections on Experimental Physiology and Physical Medicine, Mayo Clinic, Rochester, Minn.:

Electrical Stimulation of Muscles: The results of experimental studies on electrical stimulation of muscles will be demonstrated, and devices for this purpose will be shown.

O. LEONARD HUDDLESTON and JAMES G. GOLSETH, Department of Physical Medicine, University of Southern California School of Medicine, and Los Angeles County General Hospital, Los Angeles:

Clinical Electromyography: The exhibit will consist of electromyograms, charts, drawings and photographs dealing with various clinical observations in neuromuscular disorders using electromyography. There will also be demonstrations of the procedure on various types of neurologic patients.

H. WORLEY KENDELL, ELLA V. FAY and BEATRICE WADE, American Occupational Therapy Association and University of Illinois College of Medicine, Department of Physical Medicine, Chicago:

Occupational Therapy: There will be actual demonstrations on patients, varying the patients from day to day. Included will be cerebral palsy, paraplegia, poliomyelitis, general medical cases and arthritis.

HOWARD A. RUSK and DONALD A. COVALT, New York University School of Medicine, New York, and MILDRED ELSON and CATHERINE WORTHINGHAM, American Physical Therapy Association, New York:

Rehabilitation in Late Poliomyelitis: Methods and devices for the late rehabilitation of patients with poliomyelitis will be demonstrated with actual patients.

FRANCES A. HELLEBRANDT, Baruch Center on Physical Medicine, Medical College of Virginia, Richmond:

Hydrotherapy: Hydrotherapeutic procedures of use to the general practitioner will be demonstrated.

A. RAY DAWSON, LOUIS B. NEWMAN, ROBERT BOYLE, EDWARD E. AVERY and A.B.C. KNUDSON, Veterans Administration, Washington, D.C.:

Physical Medicine and Rehabilitation in Tuberculosis and Thoracic Surgery: The ultimate goal in the rehabilitation of patients with tuberculosis and other diseases of the chest is not only the physical recovery of these persons but their training for future economic independence. The exhibit will include charts, photographs, slides, motion pictures and apparatus showing the various rehabilitation activities. Patients will also be demonstrated.

HENRY H. KESSLER, New Jersey Rehabilitation Clinic, Newark, N.J.:

Rehabilitation of Amputees: This exhibit will present methods of rehabilitating persons who have major amputations of upper or lower extremities. Proper use of the prosthesis will be demonstrated by patients.

The following demonstrators will assist in the presentation of the exhibit:

Frances Baker, San Francisco.
Harold Dinken, Denver.
Arthur C. Jones, Portland, Ore.
W. Jerome Lee, Richmond, Va.
Sedgwick Mead, St. Louis.
C. O. Molander, Chicago.
W. D. Paul, Iowa City.
Donald L. Rose, Kansas City, Kan.
Herman L. Rudolph, Reading, Pa.
Walter M. Solomon, Cleveland.
Augustus Thorndike, Boston.
George D. Wilson, Asheville, N. C.
Walter J. Zeiter, Cleveland.

SECTION EXHIBITS

Each of the seventeen sections of the Scientific Assembly has arranged a group of exhibits dealing with the various branches of medicine.

Section on Internal Medicine

The representative to the Scientific Exhibit from the Section on Internal Medicine is Thomas C. Garrett, Philadelphia.

MARGARET CHIEFFI, LILLI HOFSTATTER, ESBEN KIRK and WILLIAM B. KOUNTZ, Washington University School of Medicine and St. Louis Infirmary Hospital, St. Louis:

Changes in Man Associated with Age: The exhibit presents a further evaluation from a physiologic and anatomic point of view of changes associated with age in man. Attempts at modification of certain functions are made by the administration of hormones.

GRAHAM ASHER, LAWRENCE STEFFEN and FRANKLIN D. MURPHY, University of Kansas School of Medicine, Kansas City, Kan.:

Subclinical Tetany, Its Recognition and Treatment: The exhibit describes studies on the incidence of low mineral diets in hypertension and angina; blood calcium studies in hypertension with and without evidence of subclinical tetany; subclinical tetany, definition, symptoms and signs; demonstration of a useful sign in myotactic irritability; influence of diet; electrocardiographic changes; associated deficiencies, and adjunctive treatment.

EMANUEL SCHWARTZ, LOUIS LEVIN, HARRY LEIBOWITZ, I. M. KURTZ, J. REICHER, J. F. KELLY and J. WOLF, Long Island College of Medicine and Long Island College Hospital, Brooklyn:

Histamine Antagonists: A comparative experimental and clinical study of "pyribenzamine," "benadryl," "antistin," "neohetramine," "thephorin" (Nu 1504), "histadyl" (01013) and "neoantergan" is presented. The effects of the antihistaminic drugs on histamine and allergic cutaneous wheals are illustrated, and cumulative data relating to their clinical value and limitations are presented.

PAUL N. UNGER, MURRAY WEINER and SHEPARD SHAPIRO, New York University College of Medicine, New York:

Vitamin K Tolerance Test: The prothrombin response to the parenteral administration of large doses of synthetic vitamin K is determined after resting levels have been established. Serial estimations of the diluted (12.5) plasma prothrombin time are made. In the presence of normal hepatic function the prothrombin time remains normal or becomes temporarily reduced to hyperprothrombinemia levels. When function of the liver is impaired, the existing hypoprothrombinemia fails of correction or, if the resting level is normal, it becomes temporarily prolonged. A total of 113 patients have been studied, the results of the test being correlated with other liver function tests and, in addition, biopsy studies in a significant number of the patients. The results demonstrate that the vitamin K tolerance test can be used as a sensitive and reliable indicator of over-all hepatic dysfunction.

STUART W. McLEOD, Rochester General Hospital, Rochester, N.Y.:

Pathologic Physiology of Barbiturate Poisoning: The exhibit demonstrates the types of observations that should be made during acute barbiturate intoxication. The important effect of barbiturates in toxic amounts in paralyzing the action of the ciliated epithelium of the bronchi is emphasized as well as the pulmonary complications which develop by virtue of this effect. The effect of anoxia secondary to the pulmonary complications in further depressing the central nervous system is presented. Methods of therapy based on the pathologic physiology of the disease are shown. The purpose of the exhibit is to consider barbiturate poisoning as a separate disease which, like any other disease, has an evolution.

DAVID CAYER, Bowman Gray School of Medicine, Winston-Salem, N.C.:

Vitamin Requirements in Health and Disease—Comparison of Clinical and Laboratory Data: The exhibit depicts levels of fat soluble, C and B complex vitamins in patients. Photographs and roentgenograms of patients, diagrams of vitamin metabolism, indications for use and suggested dosages are included. The diagnosis by signs, symptoms and vitamin levels in the blood plasma and urine are considered. Vitamin levels have been measured in patients maintained on restricted therapeutic diets, and with pernicious anemia, sprue, hepatic disease, acute and chronic infections and cancers. The effect of roentgen therapy on the vitamin excretion levels is also noted. The need for an adequate intake of each of the vitamins rather than excessive administration of any one group in an over-all plan of treatment of the individual patient is emphasized.

LOUIS KRASNO, University of Illinois College of Medicine, MARY KARP and PAUL S. RHOADS, Northwestern University Medical School, Chicago:

Inhalation of Penicillin Dust: A new method of administering penicillin involves the inhalation of the fine aerosol particles of dry pulverized penicillin. This method has simplified the mechanics of aerosol therapy, thus extending its scope more readily for office and home treatment. The original device and several modifications of the apparatus are presented. Bacteriologic findings of throat, nose and sputum cultures before and after inhalation therapy are demonstrated, and blood level determinations on a series of patients are illustrated. Clinical results are based on treatment of over 600 patients by this method.

CHARLES LEROY STEINBERG, Rochester General Hospital, Rochester, N.Y.:

Primary Fibrositis (Dupuytren's Contracture): The exhibit describes the pathology, symptomatology, biochemical blood changes and treatment with tocopherols of primary fibrositis. Primary fibrositis is overdiagnosed in Great Britain and on the Continent. It is underdiagnosed in the Western Hemisphere. Dupuytren's contracture is a form of primary fibrositis which is common but is not often diagnosed because it is not thought of in routine physical examinations. It may be the one objective evidence leading to a diagnosis of primary fibrositis.

MICHAEL A. RUBINSTEIN, Montefiore Hospital, New York:

Multiple Myeloma - Its Relation to Leukemia: The clinical, biochemical, pathologic and cytologic characteristics of multiple myeloma are described, and the criteria for differential diagnosis are discussed. Points of distinction between multiple myeloma and leukemia cannot be regarded as fundamental, and there is no sharp demarcation between the two diseases. Instances are abstracted in which cases of multiple myeloma manifest the various characteristics of leukemia and vice versa. Chemotherapy of multiple myeloma is reviewed.

W. PAUL HOLBROOK, DONALD F. HILL, CHARLES A.L. STEPHENS JR., LEO J. KENT and EDNA McCARTHY, Tucson, Ariz.:

Treatment of Rheumatoid Arthritis: Treatment of rheumatoid arthritis is presented with basic outline, optional, doubtful and worthless methods. Emphasis is given on prevention and correction of deformity with pictures, roentgenograms, charts and demonstrations. Special attention to knee contractions and correction with manipulation in approximately 70 cases is included.

CHARLES A.R. CONNOR, American Heart Association, New York:

Heart Disease: The exhibit gives general aims, purposes and programs of the American Heart Association.

H.M. MARVIN, American Council on Rheumatic Fever, American Heart Association, New York:

Rheumatic Fever: The exhibit of the American Council on Rheumatic Fever of the American Heart Association covers some phases of rheumatic fever and rheumatic heart disease.

ANTON S. YUSKIS and GEORGE C. GRIFFITH, University of Southern California School of Medicine and Los Angeles County General Hospital, Los Angeles:

Orthostatic Hypotension and Orthostatic Tachycardia, Observations in color of the vascular postural changes occurring in the retinal vessels in the syndrome of orthostatic hypotension and orthostatic tachycardia are shown. Normal postural vascular responses are also described. The effect of orthostatic hypotension on cardiac rhythm as shown in the electrocardiogram is demonstrated. The effect of treatment with "paredrine hydrobromide" is demonstrated, especially on the changes produced in the retinal vessels. These clinical observations are demonstrated as additional evidence that the possible cause for this syndrome is the abnormally low venous-capillary tone in the lower extremities.

ESTHER MEYER and MARVIN KAGEN, University of Illinois College of Medicine, Chicago:

Mycologic Diagnosis: The salient features of the symptoms and signs of the deep and superficial fungous diseases are listed, along with the specific drugs used in therapy. The methods of making mycologic diagnoses are illustrated and described. Sketches of the microscopic observation giant colonies, transparencies of the cutaneous lesions and anaerobic cultures are presented. The aim will be to give the general practitioner an approach to making a diagnosis of a fungous disease.

JOHN K. LATTIMER, J. BURNS AMBERSON, WILLIAM H. STEARNS, JOSEPH SCHWARTZ, ROWLAND GOODMAN and WILLIAM J. EAST, Kingsbridge Veterans Hospital, New York:

Streptomycin Therapy of Tuberculosis - Genitourinary System: Drawings, charts and photographs depict the pathogenesis of genitourinary tuberculosis and the methods and limitations of streptomycin therapy. Symptomatic results, bacteriologic methods and results, cystoscopic observations, toxicity and resistance to the drug are demonstrated.

ARTHUR LACK, TRAVIS WINSOR and WILLIAM ADOLPH, University of Southern California School of Medicine, Los Angeles, and Birmingham Veterans Administration Hospital, Van Nuys, Calif.:

Biomicroscopy of Conjunctival Vessels in Hypertension: Exhibit demonstrates a clinical method of direct visualization of bulbar conjunctival vessels with magnifications up to two hundred and forty times. Characteristics of normal vascular patterns and streamline flow are presented by charts and diagrams. Analysis of 100 hypertensive patients studied by this method reveals characteristic morphologic observations in the arterioles and capillaries. Most striking are the changes in the capillary bed, which suggest a hypertensive pattern characterized by (1) initial widespread narrowing or constriction throughout the capillary loops; (2) elongation with abnormal loopings; (3) progressive development of fixed tortuosities and sharp angularities; (4) loss of normal distensibility, and (5) thickening of capillary walls (confirmed by histologic study of necropsy material).

Section on Surgery, General and Abdominal

The representative to the Scientific Exhibit from the Section on Surgery, General and Abdominal, is Walter G. Maddock, Chicago.

WALTMAN WALTERS, with the assistance of HAROLD A. NEIBLING, and BRADLEY C. BROWNSON and SPENCER K. PHILLIPS, Mayo Clinic, Rochester, Minn.:

Vagotomy for Peptic Ulcer - Favorable and Unfavorable Results After a Two Year Experience: The exhibit presents a two year follow-up study of favorable and unfavorable results of vagotomy for peptic ulcer. The study includes (1) anatomic studies of vagi by means of photographs, gross specimens, drawings and models; (2) salient points in the surgical technic of transabdominal resection of the vagus nerve; (3) postoperative motility disturbances, as shown by preoperative and post-roentgenograms and balloon studies; (4) changes in gastric acidity, and (5) healing or recurrence of ulceration, following vagotomy or vagotomy combined with supplemental gastric surgical procedures. Abstracts of case histories show that there is a lack of positive correlation between relief of clinical symptoms in insulin-negative and insulin-positive patients; relief of gastrospasm and ulcer pain following vagotomy (which causes dilation of the stomach) is not to be interpreted as healing of ulcer; the abdominal approach in a case of suspected peptic ulcer may save the patient from being subjected to vagotomy in the absence of ulcer.

W. E. ADAMS and JAMES M. FRITZ, University of Chicago, Department of Surgery, Chicago:

Congenital Cystic Malformation of the Lung--Pathologic Characteristics and Differential Diagnosis: The exhibit of clinical and pathologic material of 17 representative patients (out of a total of 34 treated) emphasizes the problem of differential diagnosis in this lesion. The exhibit includes roentgenograms, photographs and photomicrographs in addition to tables.

RICHARD B. CATTELL and NEIL W. SWINTON, Lahey Clinic, Boston:

Pathogenesis of Carcinoma of Rectum and Colon: The incidence of polyps of colon and rectum, their importance in the pathogenesis of carcinoma and their relation to multiple cancers of the large intestine are shown. The methods of treatment--fulguration, colostomy and resection--are illustrated.

GROVER C. PENBERTHY, C. N. WELLER, R. J. NOER and J. L. POSCH, Wayne University College of Medicine, Children's Hospital of Michigan and Detroit Receiving Hospital, Detroit:

Treatment of Burns: The treatment of burned patients is described, including a presentation of physiologic disturbances produced by severe burns and means for restoring the patient's normal status. The treatment of the burned surfaces includes presentation of types of dressings and principles of early epithelial replacement.

JACOB J. WEINSTEIN, George Washington University School of Medicine, Washington, D.C.:

Parenteral Proteins in Surgery: The exhibit shows (1) the indications for parenteral proteins in both surgical and medical cases; (2) tolerance studies with parenteral protein hydrolysate by intravenous, subcutaneous and intramuscular routes; (3) the physiologic and histologic alterations associated with probable deficiencies; (4) postoperative blood deficiency in various surgical procedures with particular reference to the nitrogen loss and the effect on the blood proteins and hemoglobin; (5) clinical results, showing the effects of protein hydrolysate in various surgical procedures on patients who have received protein therapy and (6) toxicities, describing reactions for the entire study.

R. W. POSTLETHWAIT, H. LEE HOWARD and PAUL W. SCHANHER, Duke University School of Medicine, Durham, N.C.:

Nonreactive Absorbable Glove Powder: Transparencies illustrate the gross and microscopic lesions produced by talc implantation into various tissues in animals. Similar sections show little or no reaction when a starch powder is used. Appropriate case histories demonstrate the clinical importance of this reaction to talc and the necessity of obtaining a satisfactory substitute.

HERBERT CONWAY, CLARENCE R. STRAATSMA, CORNELIUS J. KRAISSL, ROBERT H. CLIFFORD, JEROME GELB, LEO L. LEVERIDGE, JULIUS M. JOSEPH, SAMUEL CLIMO and RICHARD B. STARK, Veterans Hospital, Bronx, N.Y.

Plastic and Reconstructive Surgery—Reconstruction of External Ear, Closed Abdominal Flaps and Crossed Leg Flaps: Moulages demonstrate the phases of reconstruction of congenital, traumatic and postoperative defects of the external ear. Photographs and moulages show the use of abdominal flaps, skin lined, to cover defects of the face and of the upper and lower extremities. Photographs and drawings present the use of pedicle flaps consisting of full thickness of skin and subcutaneous tissue from one leg to cover defects of the opposite extremity.

CLAIRE L. STRAITH, WILLIAM G. McEVITT, MATTHEW PILLING and JOHN R. LEWIS, Straith Clinic for Plastic Surgery, Detroit:

Automobile Injuries: New statistics are presented from a survey made by the Detroit Police Department, demonstrating the great hazards of riding in the " guest passenger " seat as compared with the driver's seat. Typical injuries received in various positions in the car are demonstrated. Principles of plastic repair useful to the physician, intern and general surgeon, who usually are called to treat these accidental injuries, are shown as well as some suggestions for subsequent repair of major defects for the rehabilitation of these accident victims. Suggestions are given for the improvement of automobile body design and protection of passengers from crushing facial injuries.

JAMES BARRETT BROWN, L. T. BYERS, FRANK McDOWELL and MINOT P. FRYER, St. Louis:

Congenital Deformities Repaired by Plastic Surgery: Congenital deformities of the face including cleft lips, defects and absence of the ears, ptosis of the eyelids and distortions of the nose and jaw account for a large number of patients who need surgical treatment and whose defects are amenable to surgical restoration. Illustrative photographs of these lesions along with records of what may be done to relieve the difficulties of these patients are presented.

LOUIS A. BUIE, N. D. SMITH, R. J. JACKMAN and J. R. HILL, Mayo Clinic, Rochester, Minn.:

Fulguration of Polypoid Lesions of the Terminal Portion of the Colon: The exhibit is based on a study of a large series of cases of polypoid disease of the colon. Especial attention is directed toward fulguration of polyps of the terminal portion of the colon. Moulages are employed to show various types of polyps and the frequency of their occurrence in different segments of the colon. Similarity of the situation of polyps and carcinoma in various areas of the large intestine is shown by diagrams. Lesions may be observed through proctoscopes which are in position in moulages of the anus and rectum. The observer may demonstrate for himself the performance of fulguration by utilizing electrical appliances which are provided.

L. B. WOOLNER and **JOHN R. McDONALD**, Mayo Clinic, Rochester, Minn.:

Cancer Cells in Sputum and Bronchial Secretions, an Aid in Diagnosis of Bronchogenic Carcinoma: The exhibit shows the clinical value of cytologic examination of sputum and bronchial secretions as an aid in the diagnosis of bronchogenic carcinoma. It includes *(a)* the technic of collection of material and the fixation and staining of smears, *(b)* the cytology of normal sputum, *(c)* the demonstration of cancer cells in sputum and bronchial secretions originating from the various histologic types of carcinoma of the lung, *(d)* case histories illustrating the diagnostic value of this method and *(e)* an analysis of the data on 150 consecutive cases in which the sputum or bronchial secretions were positive for carcinoma cells.

JERE W. LORD Jr., **LESTER BREIDENBACH**, **FREDERIC W. BANCROFT**, **THOMAS J. O'KANE** and **S. POTTER BARTLEY**, New York and Brooklyn Regional Committee on Fractures and Trauma of the American College of Surgeons, New York:

Management of Arterial Emergencies: The management of injuries to a major artery resulting from an accident outside of the hospital or an injury during the course of an operation is presented. Vascular equipment, first aid and emergency hospital treatment, definitive surgical procedure and postoperative care are outlined and illustrated. The surgical management of arterial emboli is discussed. Organization of vascular teams within each hospital is suggested to carry out these procedures.

GEORGIA PRICE and **ELIZABETH F. CARR**, Northwestern University Medical Library, Chicago:

Literature Illustrating the History of Surgery: This exhibit includes a collection of the outstanding books on surgery from the earliest printed works up to about the middle of the Nineteenth Century, and pictures of many outstanding men in the history of surgery.

ROY D. McCLURE, **L. S. FALLIS**, **A. B. McGRAW**, **C. R. LAM**, **B. E. BRUSH** and **D. E. SZILAGYI**, Henry Ford Hospital, Detroit:

Treatment of Acute Suppurative Appendicitis: Charts and graphs show comparative results in the treatment of this condition during the past 10 years. Details of diagnosis, preoperative care, surgical technic and postoperative care most important for obtaining good results are set forth in charts, diagrams and drawings.

JOHN D. STEWART, **SIDNEY M. SCHAER**, **W. H. POTTER** and **ALFRED J. MASSOVER**, University of Buffalo School of Medicine, Buffalo:

Management of Massively Bleeding Gastroduodenal Ulcer: Principles of management are tabulated, team work and preoperative resuscitation are described, and illustrative specimens and case histories are shown. Laboratory observations, including blood volume data, and their value in relation to therapy are analyzed. The operative technic is depicted, and the results in a series of cases are tabulated.

HILGER PERRY JENKINS, **HOWARD REISER**, **DAVID S. FOX** and **RUDOLPH JANDA**, University of Illinois College of Medicine and Woodlawn Hospital, Chicago:

Wounds of the Heart—New Experimental Method for Control of Hemorrhage: In an experimental study on animals the hemorrhage from wounds of the ventricles, the auricles and the coronary vessels was controlled by the application of a patch of gelatin sponge. Photographs demonstrate the method used with improvements in the technic of applying the sponge. The pathologic studies, gross and microscopic, demonstrate the healing of the wound and the ultimate absorption of the gelatin sponge. The clinical application of this experimental method, with its merits and limitations, is outlined.

THOMAS A. SHALLOW, **KENNETH E. FRY** and **FREDERICK B. WAGNER Jr.**, Jefferson Medical College Hospital, Philadelphia:

Parathyroid Adenoma—Clinical Problems: The key features in diagnosis and treatment of this disorder are reviewed. These are amply illustrated from personal cases which emphasize the problems in diagnosis, the various stages of the disease and the complications in the preoperative as well as the postoperative patient. The occurrence of this disease in both father and daughter is also portrayed.

J. ROSS VEAL, **HUGH H. HUSSEY** and **JOHN SHADID**, Georgetown University School of Medicine, Washington, D.C.:

Impaired Venous Circulation: The exhibit demonstrates the causes and effect of impaired venous circulation on the extremities. The early and late signs and symptoms of impaired venous circulation of the extremities are illustrated. The methods of diagnosis and differentiation are shown, together with the complications and treatment of the various phases of impaired venous circulation of the extremities.

GEORGE CRILE Jr. and **WILLIAM S. DEMPSEY**, Cleveland Clinic, Cleveland:

Indications for Removal of Nontoxic Adenomas of the Thyroid: The low incidence of carcinoma of the thyroid in necropsy material and vital statistics is compared with the high incidence of carcinoma found by the surgical pathologist. The difference in these figures results from the screening out of patients with innocuous adenomas who do not consult a surgeon. Indications for removal of selected nontoxic adenomas are given.

ROY G. KLEPSER, Georgetown University School of Medicine, Washington, D.C.:

Treatment of Abscess of the Lung: The exhibit presents the etiology and pathogenesis of pulmonary abscess, with results of chemotherapy, drainage and resection, based on an analysis of treatment of 200 consecutive pulmonary abscesses. Abscess of the lung in children is portrayed, and drawings illustrate the method of drainage. Indications for drainage and indications for resection of the lung are given.

BOWMAN C. CROWELL and **MALCOLM T. MacEACHERN**, American College of Surgeons, Chicago:

Cancer, Surgery, Fractures, Industrial Health and Hospital Rating: The exhibit depicts standards for cancer clinics, cancer detection centers, medical service in industry, graduate training in surgery and the point rating system for hospitals.

HAROLD LINCOLN THOMPSON and HARRY C. PROUT, Los Angeles:

Vagus Resection in the Treatment of Peptic Ulcer: The exhibit reviews the results in approximately 100 unselected cases in which vagus section was applied in the surgical treatment of peptic ulcer. The cases are collected from private and charity hospitals where operation was performed by resident and attending surgeons. It is believed that the cases illustrate average results being obtained at the present time from an operation as applied in general surgical practice.

ROBERT A. GROFF and JOSEPH C. YASKIN, Graduate School of Medicine, University of Pennsylvania, Philadelphia:

Technic of Pain Control: Neurosurgical methods of pain control and technic of rhizotomy, nerve section, chordotomy, sympathectomy and lobotomy for intractable pain due to neuralgias, causalgias and cancer are illustrated. Tic douloureux, glossopharyngeal neuralgia and peripheral vascular disease (Raynaud's disease, Buerger's disease) are considered.

HAROLD LAUFMAN, WAYNE B. MARTIN and STANLEY W. TUELL, Northwestern University Medical School, Chicago:

Vasospasm--An Experimental Study: The pattern of vasospasm subsequent to arterial and venous occlusions with particular emphasis on the importance of vasospasm in the recovery of strangulated intestine is demonstrated. Postocclusive vasospasm and the behavior of the blood stream in the smaller radicles under these conditions have a broad implication in the basic pathologic physiology of occlusive vascular disease in other parts of the body. Photographs of the apparatus and employment of the technics demonstrate the use of direct micrometry in measuring the caliber of the minute blood vessels. The effects of various therapeutic measures such as sympathetic nerve section and use of vasodilating drugs, oxygen and anticoagulants are shown by direct vision of microscopic blood vessels.

BERNARD JUDOVICH, WILLIAM BATES, GOLDA NOBEL and JAMES DUNN, University of Pennsylvania Graduate School of Medicine, Philadelphia:

Technic of Pain Control: Methods of pain control by local and regional injection are shown, with the technic of paravertebral nerve and sympathetic ganglion block. Pain syndromes include occipital neuralgia, scalenus anticus syndrome, postcoronary pain in shoulder, arm and hand, segmental neuralgias of chest and abdominal walls, painful scars, neuralgic phase of low back pain, sciatic pain and herpes zoster. Physical therapy for pain, use of the ammonium salts for nerve block and Coley's fluid for pain are illustrated.

ARNOLD S. JACKSON, Jackson Clinic, Madison, Wis.:

Hyperthyroidism--Diagnosis and Treatment: Use of Propylthiouracil, Iodine and Surgery: The exhibit demonstrates various aspects of hyperthyroidism--the diagnosis, the use of iodine and propylthiouracil therapy and the various steps in the surgical removal of goiter. Special attention is given to the use of propylthiouracil, and photographs and charts demonstrate the effect of this drug on cases of hyperthyroidism in children as well as adults. Indications for and against the use of the drug as determined by a study of 175 cases of toxic goiter are discussed.

Section on Obstetrics and Gynecology

The representative to the Scientific Exhibit from the Section on Obstetrics and Gynecology is Frederick H. Falls, Chicago.

WILLIAM BICKERS, Richmond, Va.:

Dysmenorrhea: Exhibit presents study of the endometrial pattern, basal temperature curve and myometrial contraction patterns, and intrauterine pressures in patients with dysmenorrhea. The intrauterine balloon technic for recording uterine contractions is presented. Treatment is discussed. Technic for recording the uterine contractions on the intact rabbit uterus will also be shown along with tracings to demonstrate the relation between animal and human uterine contraction patterns.

MONTE SALVIN, Los Angeles:

Uterotubal Insufflation-Use of Penicillin and Streptomycin Aerosols: The exhibit shows a model of the female pelvis containing cervix, uterus, tubes, ovaries and the openings from the fimbriated ends of the tubes into the peritoneal cavity together with an apparatus to vaporize penicillin and streptomycin and the introduction of the vapor by a cannula through the cervix, uterus and fallopian tubes to the peritoneal cavity. Charts show indications and results.

FREDERICK H. FALLS, University of Illinois College of Medicine, and CHARLOTTE S. HOLT, Illinois State Department of Public Health, Chicago:

Carcinoma of the Uterus: Charts, models, drawings and graphs depict carcinoma of the cervix and body of the uterus. Particular emphasis is placed on the pathology, gross and microscopic, and on the associated pathology. Etiologic factors are pointed out and diagnostic procedures for the detection of early carcinoma are described. Methods of treatment are shown together with statements concerning the results of such treatment.

J. W. CUTLER, University of Pennsylvania Graduate School of Medicine, Philadelphia:

Pregnancy and Tuberculosis-Changing Concepts in Management: The exhibit describes (1) management and results in pregnancy and arrested tuberculosis (arrested without callapse therapy); (2) management and results of pregnancy and tuberculosis (arrested without collapse therapy); (3) management and results of pregnancy and active tuberculosis first recognized during pregnancy, with case histories of patients in whom collapse therapy and streptomycin were used to bring the tuberculosis under control without interruption of pregnancy after other measures failed; (4) control of tuberculosis in pregnancy through routine use of antepartum roentgenologic examination of the chest.

CATHARINE MACFARLANE and FLORENCE SLATER, Woman's Medical College of Pennsylvania, Philadelphia:

Control of Cancer of the Uterus—Value of Periodic Pelvic Examination, Report of a Ten Year Clinical Research: Statistical charts illustrate the pelvic observations in a group of 700 presumably well women followed over a period of ten years. These include cancerous, precancerous and noncancerous lesions. Moulages illustrate cancerous and precancerous lesions as seen through vaginal speculums. Technic of the probe test and biopsy is demonstrated on specimens.

WALTER W. WILLIAMS and FRED A. SIMMONS, Springfield Hospital and Massachusetts General Hospital, Springfield and Boston:

Male Infertility: The exhibit interprets spermatic pathology in terms of clinical fertility. The material was derived from the routine study of sterility cases in private practice. A vast number of apparently normal gametes are ordinarily required to furnish a single normal spermatozoon which is capable of fertilizing an ovum. The damage to a sperm population is commonly out of all proportion to the observed anomalies. Potential fertility is a variable which roughly coincides with the incidence of spermatic pathology. The clinical problem of diagnosis and prognosis hinges on the ability to recognize significant damage to the sperm population as a whole. Sperm concentration and motility and incidence and type of pathologic gametes are all important.

WILLIS E. BROWN, OTTO F. KRAUSHAAR and J. T. BRADBURY, State University of Iowa College of Medicine, Iowa City:

Cytology in the Detection of Cancer-Results of a Survey in 5,000 Women over 30 Years of Age: The exhibit shows photomicrographs of normal and cancerous cells in smears stained by the Papanicolaou technic. In addition to adenocarcinomas and epidermoid carcinomas of the cervix and uterus, examples of cancers of lung and kidney are included. The summary of a survey of about 5,000 vaginal smears is presented to show the correlation of cytological observations with those of biopsies and clinical examinations.

JOHN W. HUFFMAN, Northwestern University Medical School, Chicago:

The Paraurethral Ducts: Wax model reconstructions, photomicrographs, photographs and drawings illustrate the embryology, the detailed anatomy, the histology and pathology of the paraurethral (Skenes) ducts and glands in the human female.

L. I. DUBLIN and D. B. ARMSTRONG, Metropolitan Life Insurance Company, New York:

Progress in Maternal and Infant Welfare: An exhibit of charts describes recent changes in birth rates, maternal mortality and infant mortality: (1) trend of the birth rate in the United States since 1920, by age of mother and birth order of child; (2) reductions in maternal mortality at various ages; regional variations, urban and rural compared; increase in hospital confinements; major puerperal causes, time of death in maternity; (3) decrease in infant mortality; chief causes of deaths in the first month of life; infant mortality of the states compared.

Section on Ophthalmology

The section exhibit committee of the Section on Ophthaomology consists of Georgiana D. Theobald, Oak Park, Ill., chairman; Edwin B. Dunphy, Boston, and Phillips Thygeson, San Jose, Calif.

WILLIAM STONE JR. Massachusetts Eye and Ear Infirmary, Boston:

New Type Movable Implant: The exhibit presents a new type of movable implant which is a modification of several existing varieties. The results of a large series of implantations done at the time of enucleation and also a series done on sockets where the previous result has been unsatisfactory will be presented. No extrusions have occurred over a year's period and the motility on an over-all basis is 84 per cent of that of the normal eye. The results of a series of plastic repairs on contracted sockets utilizing the implant are shown, and the advantages and disadvantages of the procedure are depicted. The surgical technic necessary is diagrammed in detail. Results of animal studies on tissue growth into and around these implants over varying periods are shown.

RAYMOND G. INGALLS, Institute of Ophthalmology, Presbyterian Hospital, New York:

Tumors of the Orbit: The exhibit illustrates the important characteristics of twenty-seven types of orbital tumors. Photographs show patients with exophthalmos, increased density of soft tissue, osseous changes, biopsy material and photomicrographs of the cellular structures. The tumors are presented in the order of their frequency: hemangioma, pseudo tumor, lymphosarcoma, dermoid cysts, retinoblastoma, meningioma, melanoma, neurofibroma, cholesteatoma, rhabdomyosarcoma, neuroblastoma, hematoma, myoblastoma, fibroma, osteoma, neurinoma, sarcoma, lipoma, dermolipoma and glioma. Carcinoma of the orbit is illustrated by several cases. The number of cases, percentages of frequency, age of onset, sex, orbit and an analysis of age factors, are presented.

BERTHA A. KLIEN, Chicago:

Diseases of the Fundus Oculi: Exhibit of paintings and photomicrographs illustrate the clinical and histopathologic manifestations of diseases of the retina, choroid and optic nerve. Special emphasis is placed on the correlation of the clinical and anatomic data and on the discussion of points important in the differential diagnosis of clinical syndromes, which are of interest not only to the ophthalmologist but to other specialties.

LOUIS LEHRFELD, Wills Eye Hospital, Philadelphia:

Prevention of Ophthalmia Neonatorum—Antibiotics Replace Silver Nitrate: The exhibit presents statistical data proving that use of silver nitrate is made obsolete by availability of new antibiotics. Every case of gonorrheal ophthalmia was cured with penicillin. Penicillin was instilled in place of silver. Silver is not a safe gonococcide in the eye. Treatment of infected expectant mother eliminates ophthalmia.

JOHN G. BELLOWS and CHESTER J. FARMER, Northwestern University Medical School, Chicago:

Treatment of Ocular Infections—Use of Chemotherapeutic Agents: Exhibit shows the distribution of sulfonamide compounds, penicillin and streptomycin between the blood and ocular fluids and tissues. A series of experimental extraocular and intraocular infections induced in rabbits' eyes by various organisms is shown by means of transparencies, together with clinical cases. The therapeutic agents employed in this study include the sulfonamide drugs, penicillin, streptomycin, gramicidin, tyrothricin and bacitracin. The sites of the commoner types of infection are shown diagrammatically, with the drug of choice. The procedure for obtaining corneal and conjunctival scrapings with the isolation and means of determining the sensitivity of the organism is shown. Methods of treatment including corneal baths, with and without ion transfer and intraocular injections, are illustrated.

LORAND V. JOHNSON, Western Reserve University School of Medicine, Cleveland:

Ocular Toxoplasmosis—Clinical Observations: The exhibit presents drawings of choroiditis, roentgenograms of cerebral calcification and data relating to danger to mother from additional pregnancies, but freedom from infection for additional babies. Congenitally infected babies do not appear later to transmit the infection to the third generation.

ADOLPH POSNER and ABRAHAM SCHLOSSMAN, New York:

Observations on the Course of Glaucoma: A statistical analysis is made of 474 cases of glaucoma, including 373 cases of primary glaucoma, with regard to age, sex and refractive errors of the patients. This material is compared with similar studies in the literature. Certain conclusions which have been drawn from this study are given in graphic form. Case histories are presented to compare mild glaucoma with malignant glaucoma. These two extremes in the scale of severity differ sufficiently from the typical picture to be worthy of special consideration.

Section on Laryngology, Otology and Rhinology

The representative to the Scientific Exhibit from the Section on Laryngology, Otology and Rhinology is James B. Costen, St. Louis.

J. BROWN FARRIOR, Tampa, Fla., and RICHARD C. BOYER, Ochsner Clinic, Tulane Medical School, New Orleans:

The Ear in Roentgen Anatomy: The exhibit consists of a series of temporal bones which have been sectioned and mounted in plastic to permit the visualization of the internal landmarks of the ear. Roentgenograms of the individual sections demonstrate the appearance of the anatomic divisions of the temporal bone as they appear on clinical roentgenograms. Sections are prepared for each of the classic roentgenologic views of the temporal bone.

CHEVALIER L. JACKSON, JOHN V. BLADY, CHARLES M. NORRIS and WALTER MALONEY, Temple University School of Medicine, Philadelphia:

Cancer of the Larynx: The exhibit presents an analysis of five year end results in a series of several hundred patients treated by surgery or irradiation, or both, from 1930 to 1942. Operative specimens and correlated clinical and pathologic data are so arranged that the criteria on which selection of treatment was based can be rechecked and reevaluated in the light of the subsequent course. A similar study of patients treated by irradiation alone and of patients in whom recurrence or metastasis was treated is also presented. A concise summary of the exhibitors' latest views on criteria for the selection of treatment are given.

JOSEPH I. KEMLER, Baltimore:

Bilateral Thyrotomy for Carcinoma of the Larynx: The exhibit shows drawing of carcinomas of the larynx suitable for the operation, photomicrographs of specimens and plates of the different steps of the operation, with models of some of them. A drawing of the larynx after operation is presented.

A. C. STUTSMAN, Washington University School of Medicine, St. Louis:

Foreign Bodies of the Tracheal Bronchial Tree and Esophagus: The exhibit of roentgenograms shows the various changes produced by nonopaque bodies in the tracheal bronchial tree. Foreign bodies of the upper portion of the esophagus are presented.

ADA M. HILL, American Hearing Society, Washington, D. C.:

Hearing Conservation: The exhibit consists of dioramas depicting progress in the work for persons with impaired hearing. Information is available on lip reading, hearing aids, prevention of deafness, and national and local programs for rehabilitation of the hard of hearing.

MILTON G. LEVINE, ROBERT E. HOYT and O. B. PRATT, College of Medical Evangelists, Los Angeles:

Rhinoscleroma—Etiology, Pathology and Diagnosis: The exhibit describes experimental studies carried out during the past two years in the Institute of Experimental Medicine. The etiology, pathology and diagnosis are presented.

GUERDAN HARDY, St. Louis:

Fractures of the Zygomatic (Malar) Bone—Diagnosis and Treatment: The exhibit includes charts showing causes of malar fractures, the diagnosis and associated injuries; photographs and roentgenograms of patients, and drawings showing proper approaches in both simple depression and comminuted fractures.

Section on Pediatrics

The representative to the Scientific Exhibit from the Section on Pediatrics is Albert V. Stoesser, Minneapolis.

CARLETON DEAN, Michigan Crippled Children Commission, Lansing, Mich.:

Prosthetic Training for Child Amputees in Michigan: The exhibit presents the physical and mental preparation and prosthetic instruction program developed by the Michigan Crippled Children Commission. Features include a prosthetic instructor who is a double arm amputee and several child amputees ranging in age from 5 to 14 years. Training in the use of the prosthesis for common, everyday activities will be exemplified by the use, on the part of the live models, of various equipment such as training steps, roller skates, tricycles, eating and writing equipment.

LAWRENCE J. LINCK, National Society for Crippled Children and Adults, Chicago:

Services to the Handicapped - Cerebral Palsy: The exhibit includes pictures and transparencies with descriptions illustrating health, welfare, education, recreation, rehabilitation and employment services for crippled and handicapped persons; special emphasis is placed on services for children with cerebral palsy, such as, physical, occupational and speech and hearing therapy.

H.M. KEITH, W.McK. CRAIG, J.W. KERNOHAN, F.P. MOERSCH and J.D. CAMP, Mayo Clinic, Rochester, Minn.:

Brain Tumors in Children: The exhibit presents a statistical analysis of brain tumors in children observed between the years 1907 to 1946 inclusive. In all the cases reported (over 400) the children had tumors which were proved by clinical means and by a microscopic examination of tissue removed at operation or at necropsy. These tumors are classified as to location and type, and as to the age of the patient. Case histories representing the various types of tumor observed, accompanied by roentgenograms and by gross and histologic photographs in color, are shown.

ALFRED D. BIGGS, St. Luke's Hospital, Chicago:

Primary Tuberculosis - A Clinical and Roentgen-Ray Study: The exhibit includes studies of the evolution and healing of typical primary lesions, as well as clinical features of primary tuberculosis including gastric washings and sedimentation rates;

ARILD E. HANSEN and HILDA F. WIESE, University of Texas School of Medicine, Galveston:

Dietary Fat in Relation to the Skin: One of the significant noncaloric functions of fat is its effectiveness in the maintenance of a healthy skin. Exclusion of fat containing linoleic or arachidonic acid from the diet results in typical syndromes characterized by abnormalities of the skin in both rats and young puppies. Analyses of the serum lipids and lipids of the skin show definite qualitative differences as compared with those of animals maintained on diets containing fats rich in the essential fatty acids. Possible relationship between dietary fat containing linoleic or arachidonic acid and the dermal structure of man has been demonstrated. The serum fatty acids of approximately three fourths of the infants and children and about one half of the adults with eczema show a low degree of unsaturation. Addition of fat of animal origin, such as fresh lard, and of certain vegetable oils rich in the essential fatty acids to the diet of some 200 patients disclosed favorable clinical response in the majority of infants and children.

HARRY WALLERSTEIN and ALFRED SCHWARZ, Jewish Memorial Hospital, New York:

Management of Erythroblastosis Fetalis - Substitution Transfusion; Indications and Technics: Enlargements of transparencies depict basic pathology believed responsible for failure of former methods of therapy. Charts show former routines and resultant mortality rates compared with present series. Criteria for anticipation and diagnosis and indications for blood substitution and other forms of treatment are given with significant case histories. Methods of blood substitution (including sagittal sinus, radial artery and umbilical vein technics) are described and illustrated by enlargements of transparencies and by manikin demonstration.

VIRGINIA SHULER, Committee on Rural Medical Service, American Medical Association, Chicago:

Rural Child Health: The exhibit shows the progress of the Hill-Burton program, revealing that of the hospital projects approved for construction a majority are located in communities with fewer than 5,000 population; programs fostered by state medical societies to extend the best of medical care to children who live in rural areas; how the health program of the Parent-Teachers Association coordinates with that of the medical societies, and how a medical school reaches out to the rural physician and offers him the advantages of urban practice.

JOHN P. HUBBARD, American Academy of Pediatrics, Chicago and Washington, D.C.:

Study of Child Health Services: Preliminary results of the two and one-half year nationwide study of child health services are described. The amount of child care by hospitals, community health agencies and physicians; the distribution of these services in relation to child population and according to the metropolitan and isolated character of the counties; variations between states, and comparisons between the services for children provided by general practitioners and pediatricians are shown. The extent of the general practitioners' and the pediatricians' hospital training in pediatrics is given special emphasis. Charts based on visits and questionnaires to medical schools, with particular reference to pediatric education, include comparisons in budgets and variations in teaching hours. A diagram shows the implementation program at the national level and its integration with state programs.

Section on Experimental Medicine and Therapeutics.

The representative to the Scientific Exhibit from the Section on Experimental Medicine and Therapeutics is Robert W. Wilkins, Boston.

IRVING S. WRIGHT, CHARLES D. MARPLE and DOROTHY F. BECK, Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Occlusion with Myocardial Infarction, American Heart Association, New York:

Anticoagulants in the Treatment of Coronary Occlusion with Myocardial Infarction: The exhibit presents the experience of the Committee in over 800 cases of coronary occlusion, approximately one half treated with anticoagulants. It includes the plan under which the study was accomplished; the mortality and morbidity among patients treated with anticoagulants as compared with patients treated by conventional methods alone; the incidence of hemorrhagic complications of anticoagulant therapy with the causes for and treatment of such complications; the usual incidence of thromboembolic complications of cardiovascular disease and the effect of anticoagulant therapy on this incidence and technics in the use of "dicumarol" and heparin.

SAMUEL M. FEINBERG, THEODORE B. BERNSTEIN, JACK M. ROSE, ALAN R. FEINBERG and SIDNEY FRIEDLAENDER, Northwestern University Medical School, Chicago:

Antihistaminic Drugs: The exhibit depicts the role of the antihistaminic drugs and shows the various mechanisms by which histamine may be combated and the mechanism of the antihistaminic drugs. The experimental actions of these drugs are illustrated, and the clinical indications, uses, incidence of results, toxic actions and limitations are described. Colored drawings of series of skin tests on backs of human subjects illustrate a new technic for assay of these drugs. Placards show the structural formulas and chemical names of new and old drugs tried by the authors experimentally and clinically.

SAMUEL J. PRIGAL, New York Medical College, Flower and Fifth Avenue Hospitals, New York:

Studies with Steam-Generated Aerosols: The exhibit describes the apparatus, a combined steam-generator and aerosolizer which is capable of producing aerosols of a variety of solutions such as aminophylline, ammonium chloride, epinephrine, "benadryl," penicillin, streptomycin and sulfonamide drugs. Several methods of confining and conserving the aerosol by means of a tent, breathing box and a closed chamber are shown. Blood levels of penicillin and streptomycin obtained by inhalation of aerosols are recorded. The clinical evaluation of the use of aminophylline aerosol in the treatment of asthma and aerosol penicillin in the treatment of infections in the respiratory tract is presented. The prophylactic application of aerosol penicillin in respiratory diseases is emphasized.

DAVID LEHR, New York Medical College, Flower and Fifth Avenue Hospitals, New York:

Low Toxicity of Sulfonamide Combinations-Experimental and Clinical Studies: Several sulfonamide drugs, such as sulfathiazole, sulfadiazine, sulfamerazine and sulfamezathine, can be dissolved simultaneously in the same medium to the full extent of their separate saturation levels without the occurrence of precipitation. Consequently, combinations of partial dosages of two or more sulfonamide compounds, if compared with equal total amounts of single drugs, showed substantially less tendency to intratubular deposition of crystals and thus to the development of renal obstruction. This fact accounted for the strikingly low acute and chronic toxicity of sulfonamide combinations in experimental animals. In addition, combinations were more completely absorbed and excreted than any of their individual constituents at the same total dosage. These results were confirmed in absorption-excretion studies in human beings using combinations of equal partial amounts of sulfadiazine-sulfathiazole-sulfamerazine, sulfadiazine-sulfathiazole, and sulfadiazine-sulfamerazine. Therapeutic results were uniformly satisfactory and conspicuous in many instances by the speed of clinical improvement.

SIBLEY W. HOOBLER and GORDON K. MOE, University of Michigan Medical School, Ann Arbor, and RICHARD H. LYONS, Syracuse University Medical School, Syracuse, N.Y.:

Autonomic Blockade with Tetraethylammonium - Pharmacologic Studies with Specific References to its Diagnostic and Therapeutic Use in Peripheral Vascular Diseases: Tetraethylammonium compounds temporarily block transmission of nerve impulses at the autonomic ganglions. The drug is therefore indicated as a diagnostic or therapeutic agent where sympathectomy may be of benefit. Skin temperature and plethysmographic records showing alterations in peripheral blood flow following administration of the drug to normal subjects and to patients with various peripheral vascular disease states are presented and compared to the effects of alterations of vasomotor tone by means of such procedures as reflex vasodilatation from body heating, paravertebral sympathetic block and sympathectomy. Pharmacologic studies of the drug in animals and its effects on the human gastrointestinal tract in hypertension and in other conditions are illustrated.

ALVAN L. BARACH, GEORGE FOSTER HERBEN, JAMES H. CULLEN and CHESMORE EASTLAKE JR., Columbia-Presbyterian Medical Center, New York and The House of Rest, Yonkers, N.Y.:

Bilateral Lung Rest in the Treatment of Pulmonary Tuberculosis-Principles and Technic of the Use of the Immobilizing Lung Chamber: The exhibit explains the principle of bilateral lung rest and illustrates how equal pressures are maintained on the outer and inner surfaces of the chest wall. The passage of air in and out of the immobilized lungs is shown to be the result of a variation in the density of air in the chamber produced twenty-five times a minute. The clinical results in 20 patients are reported, illustrated by roentgenograms of the lungs before and after treatment and follow-up films for one to ten years. Data on 15 of 21 patients who obtained arrest of their disease with closure of cavity and negative sputums are presented. The method of operation of the chamber is described.

A. J. CARLSON and A. C. IVY, National Society for Medical Research, Chicago:

Animal Experimentation and Medical Progress: The exhibit consists of material illustrating antivivisection propaganda and literature and other educational aids provided by the National Society for Medical Research suitable for educating the public on the necessity, benefits and humane character of animal experimentation.

WILLIAM P. CHAPMAN, ROBERT B. LIVINGSTON, MILTON GREENBLATT and HARRY C. SOLOMON, Boston Psychopathic Hospital, Harvard Medical School, Boston:

Physiologic Studies of Frontal Lobe in Man: (1) Effects of Electrical Stimulation of Orbital Surface; (2) Effects of Lobotomy: Cessation of respiration and elevation of blood pressure were obtained independently or simultaneously by electrical stimulation of the orbital surface of the frontal lobe in 7 of 9 patients. Results of stimulating the tip of both temporal lobes are also shown. A decreased tolerance to discomfort was obtained after lobotomy. Postoperative changes in the electroencephalogram, epinephrine response and in dextrose tolerance curves are shown.

J. Q. GRIFFITH JR., University of Pennsylvania, and J. F. COUCH, U. S. Department of Agriculture, Philadelphia:

Pharmacology and Clinical Use of Rutin: Many investigators have contributed to this exhibit, which has been arranged by Griffith and Couch. The exhibit describes (1) animal experimental studies showing the effect of rutin on capillary permeability and fragility under various experimental conditions; (2) the effect of rutin in the following clinical conditions: (*a*) patients with hypertension and associated capillary fault, to lessen incidence of apoplexy, (*b*) retinal hemorrhage, (*c*) purpura, (*d*) hereditary telangiectasia, (*e*) idiopathic hemoptysis, (*f*) certain cases of nephrosis, (*g*) as an adjuvant to physostigmine in treatment of glaucoma and (*h*) prophylaxis against radiation injury.

ALBERT E. SIDWELL JR. and WALTER WOLMAN, Chemical Laboratory, American Medical Association, and EARL C. PFEIFFER, University of Illinois College of Medicine, Chicago:

Chemical Structure and Pharmacologic Action: The exhibit shows the effect of substitution of chemical groups in pharmacologically active substances. The relation of the spatial differences between atomic groupings and the pharmacologic activities of the compounds are indicated. Models and drawings emphasize the distance between groups and the effect of substituents on the potency of drugs.

Section on Pathology and Physiology

The representative to the Scientific Exhibit from the Section on Pathology and Physiology is Frank W. Konzelmann, Atlantic City, N. J.

KARL A. MEYER, DONALD D. KOZOLL, WILLIAM S. HOFFMAN, FREDERICK STEIGMANN and HANS POPPER, Hektoen Institute for Medical Research of Cook County Hospital, Chicago:

Amino Acids in Clinical Medicine: The value of specially processed proteins and amino acid preparations in the treatment of conditions accompanied by protein deficiencies is demonstrated by the results obtained from both clinical observations and laboratory studies. The role of specific amino acids in enhancing the biologic value of natural protein and in combating deficiencies is explained. The etiologic and pathogenetic mechanism of protein deficiency in various surgical and medical diseases is discussed, as are the therapeutic indications of amino acids. The exhibit describes methods for the biologic evaluation of protein preparations in animal and human subjects and deals with the principles involved in the practical application of amino acid therapy.

MELVIN H. KNISELY, EDWARD H. BLOCH, THEODORE S. ELIOT and LOUISE WARNER, University of Tennessee College of Medicine, Memphis, and University of Chicago School of Medicine, Chicago, and FRITZ GORO, *Life Magazine*, New York:

Sludged Blood: A series of colored 8 by 10 inch (20 by 25 cm.) transparencies of microscopic living circulation show some aspects of normal circulation and various kinds of circulatory damage done by sludged blood.

L. W. KINSELL, G. D. MICHAELS, SHELDON MARGEN, H. A. HARPER, W. E. LARSEN, D. P. McCALLIE and E. F. EVANS, University of California Medical School, San Francisco and U. S. Naval Hospital, Oakland, Calif.:

Protein Metabolism in Disease of the Liver: The liver is essential for normal anabolism and catabolism of dietary and endogenous protein. Data are presented to illustrate (1) that lipotropic agents improve the utilization of administered protein in patients with chronic hepatic damage, (2) that the utilization of intravenously administered methionine is impaired in patients with acute and chronic damage to the liver, (3) that there is evidence of an excessive catabolism of sulfur-containing amino acids in some persons with severe hepatic damage and (4) that this excessive catabolism can be corrected by the administration of certain protein anabolic steroids. From the preceding and related observations, one is enabled to arrive at certain conclusions and impressions concerning the mechanism and treatment of patients with chronic hepatic damage. The work here presented has been performed under a contract with the Office of Naval Research.

BERNARD M. CHAPMAN and ISADORE PILOT, Edgewater Hospital, Chicago:

Cancer Diagnosis in Small Community Hospital: The exhibit shows the simple scientific methods in cancer diagnosis available in the general practitioner's office that can be coordinated with the facilities of a small community hospital. The technic of preparing slides of exfoliate cells from various body secretions for Papanicolaou smear diagnosis is described. The method, advantages and limitations of aspiration biopsy and the correct procedures of formal biopsy are illustrated. Case histories using these diagnostic procedures are shown with transparencies to illustrate the pathologic conditions.

JULIUS S. WEINGART, Iowa Lutheran Hospital, Des Moines, Iowa:

Stereoscopic Photography of Pathologic Specimens: The exhibit shows stereoscopic photographs, most of them in color, illustrating many phases of morbid anatomy. This is offered as an extremely effective method for preserving the actual appearance of specimens with all their anatomic relations. The apparatus and technic involved will be demonstrated.

LALL G. MONTGOMERY, American Society of Clinical Pathologists, Muncie, Ind.:

Registry of Medical Technologists: The exhibit describes the work of the Registry of Medical Technologists, its objects and aims, requirements for certification and growth of the registry; charts show the distribution of registrants, both geographic and as to places of employment, and illustrate salary studies of registrants' records.

J. GARROTT ALLEN, MARGARET SANDERSON, WILLADENE EGNER, CHARLES McKEEN, RICHARD ELGHAMMER, JAMES CROSBIE and BURT GROSSMAN, University of Chicago, School of Medicine, and Argonne National Laboratory, Chicago:

Hemorrhagic Disease Caused by Heparinemia—Temporary Control by Toluidine Blue or Protamine Sulfate: The exhibit shows control of certain hemorrhagic diseases by toluidine blue or protamine sulfate. Such diseases are caused in part at least by a circulating anticoagulant similar to heparin. These include the hemorrhagic syndrome following ionizing irradiation and nitrogen mustard therapy; that associated with acute and subacute leukemic states, experimental anaphylactic shock and to some extent in Werlhoff's disease, aplastic and pernicious anemias. Temporary control of bleeding in most of these states may be obtained by the intravenous administration of toluidine blue or protamine sulfate. Both of these are antiheparin substances. They do not affect the hemorrhagic states caused by reduced prothrombin activity, hemophilia or afibrinogenemia.

CARROLL L. BIRCH, LOUIS R. LIMARZI, RAYMOND S. KIBLER, J.T. PAUL, R.M. JONES AND P.L. BEDINGER, University of Illinois College of Medicine, Chicago:

Multiple Myeloma: History, symptoms and treatment of multiple myeloma are shown, with transparencies of myeloma cells in blood and bone marrow. Theories of origin of myeloma cells are illustrated. Roentgenograms show changes in bone. Specially stained cells demonstrate the chemistry of the disease.

JOHN A. WAGNER and GEORGE W. SMITH, University of Maryland School of Medicine, Baltimore:

Pathology of Intracranial Hemorrhage: A series of mounted gross specimens is presented, covering many of the disease processes accompanied by intracranial hemorrhage. These are divided into their principal groups (traumatic, vascular, metabolic, circulatory and neoplastic), each group of specimens being accompanied by charts, graphs and clinical abstracts for purposes of correlation. Working models of a type comparable to a skull and its contents are used to illustrate the dynamics of subdural and epidural hemorrhages. A section is devoted to the bedside diagnosis of minimal subarachnoid hemorrhage.

Section on Dermatology and Syphilology

The representative to the Scientific Exhibit from the Section on Dermatology and Syphilology is Francis W. Lynch, St. Paul.

REUBEN L. KAHN, BETTY J. BARIBEAU and FELIX A. REISS, University of Michigan Hospital, Ann Arbor:

Universal Serologic Reactions with Lipid Antigen: Several universal serologic reactions are shown: (1) results of a special serologic technic (different from diagnostic reactions in syphilis based on restricted technic); (2) reactions shown by all normal human beings tested, with different serologic patterns within a given range; (3) reactions shown by all animals tested, with different serologic patterns in different species; (4) reactions distinctive in syphilis and in lepromatous leprosy; (5) reactions under investigation (with technical variations) in other diseases.

ANNE L. BOHNING, HENRY EISENBERG, BELLE KORMAN, LYDIA MARSHAK, HERMAN N. BUNDESEN and THEODORE J. BAUER, Municipal Social Hygiene Clinic, Chicago Health Department, Chicago:

Studies in Cardiac Syphilis - Case Reports with Electrocardiographic, Roentgenographic and Clinical Observations: Electrocardiograms, roentgenograms and clinical observations are shown in cases of uncomplicated syphilitic aortitis, various types of aneurysms, involvement of the aortic valve, syphilitic heart disease associated with other types of heart disease and cases of cardiac syphilis in which there has been intensive treatment for syphilis with electrocardiographic, roentgenographic and clinical studies before treatment and one year or more after treatment. Statistics obtained from studies on 783 cases of proved syphilis show distribution of types of syphilitic heart disease according to age and sex, types of electrocardiographic tracings in 373 cases of syphilitic heart disease and percentages of cases in which syphilitic heart disease is associated with other types of heart disease.

J.R. HELLER Jr., Venereal Disease Division, U.S. Public Health Service, Washington, D.C.:

Treatment of Early Syphilis, Prenatal Syphilis and Neurosyphilis: Current penicillin therapy schedules, including outpatient treatment, are illustrated, with guides showing types of serologic response after the treatment of early syphilis with penicillin and their probable clinical implications. The panel on neurosyphilis shows the response of the spinal fluid after penicillin therapy and compares this with the response after malaria or hypertherm treatment. Reprints and booklets of interest to physicians are available.

HELEN OLLENDORFF CURTH, Columbia University College of Physicians and Surgeons, New York:

Cancer and Acanthosis Nigricans: Acanthosis nigricans, a benign cutaneous disease, is associated with an internal cancer in 50 per cent of cases. So-called malignant and benign acanthosis nigricans are clinically and histologically identical. Cancer associated with acanthosis nigricans is highly malignant. In malignant acanthosis nigricans some properties of the tumor may activate the cutaneous lesions, while in benign acanthosis nigricans one of the sex hormones may do the same. Acanthosis nigricans associated with cancer has also been observed in dogs. The relationship between acanthosis nigricans and cancer is close and definite. It may be genetic.

J. WALTER WILSON, University of Southern California, and ORDA A. PLUNKETT, University of California at Los Angeles, Los Angeles:

Practical Medical Mycology - Culture and Identification of Fungi as an Office Procedure: Medical mycology has attained but a small fraction of that degree of popularity which is necessary for diagnostic accuracy. One of the principal reasons is that the laboratory methods which are employed remain so antiquated, cumbersome, time-consuming, laborious, dirty and malodorous as to cause the entire process to be considered an unpleasant chore by the majority of physicians. This exhibit demonstrates several innovations by which most of these objectionable features may be eliminated. Preserved culture specimens of one hundred and thirty species of fungi representing the eighty-five genera which are believed to be of interest to practitioners of medicine are presented, including all important pathogenic fungi and those contaminants commonly encountered. Mounted immediately above each specimen is an illustration of the microscopic features which serve to identify the species or genus. Space is provided for two hundred growing specimens in process of diagnosis. Two hundred permanently preserved mounts for microscopic study of all pertinent fungi are included, as well as histopathologic preparations of mycologic value. Forty-two color transparencies serve to illustrate the simplified laboratory technics. One hundred and twelve transparencies of line drawings serve to show simplified methods of identification.

CARL T. NELSON, Columbia University College of Physicians and Surgeons, New York:

The Kveim Reaction in Sarcoidosis: The exhibit shows the method of preparation of the Kveim antigen and describes the gross and histologic appearance of the so-called Kveim reaction in cases of sarcoidosis. Data are given on the specificity, sensitivity and clinical value of the reaction in this disease.

MAURICE T. FLIEGELMAN and CHARLES F. WILKINSON Jr., University of Michigan, Ann Arbor; EUGENE A. HAND, Saginaw, Mich., and STURE A. M. JOHNSON, University of Wisconsin, Madison:

Mendelian Dominant Skin Diseases - the Inheritance of Xanthoma Tuberosum Multiplex; the Inheritance of the Ehler-Danlos Syndrome: The mendelian, non-sex-linked mode of inheritance as well as the clinical characteristics are illustrated for two well known skin disease entities as represented by two large families, one with the Ehler-Danlos syndrome, the other with xanthoma tuberosum multiplex. Analysis of the genetic pattern makes it possible to predict the matings which will produce these conditions in the offspring.

WALTER C. LOBITZ Jr., Hitchcock Clinic; Dartmouth Medical School, Hanover, N.H.:

The Chemistry of Palmar Sweat: Sweat collected from a palmar sweat gland was studied in an attempt to obtain more information concerning the normal function of the individual sweat gland. The exhibit demonstrates how and why the sweat was collected from the openings of palmar sweat ducts and analyzed. The studies were carried out on normal persons when the blood concentrations of some of the substances were elevated. The values are presented for the chloride, urea, dextrose, uric acid, ammonia nitrogen and creatinine concentrations of palmar sweat.

GEORGE E. SNIDER and PHILIP H. LANDERS, Veterans Administration Hospital, Fort Howard, Md.:

Nitrogen Mustard in the Treatment of Boeck's Sarcoid: The exhibit is composed of chest roentgenograms, photographs, photomicrographs and charts showing the clinical progress of patients with Boeck's sarcoid treated with nitrogen mustard.

FREDERIC E. MOHS, University of Wisconsin Medical School, Madison.:

Chemosurgical Treatment of Cancer of the Skin - A Microscopically Controlled Method of Excision: The chemosurgical technic by which the microscopic control of excision is attained is illustrated by photographs of patients with lesions in various stages of treatment. Maps showing the location of the cancer tissue on successive days of treatment are exhibited along with the excised specimens and the corresponding frozen sections, which may be viewed under the microscope. Transparencies illustrate the various types of external neoplasms that are amenable to chemosurgical treatment. Pictures of the lesions before, during and after treatment are included. Reconstructions of cancers show the "silent" outgrowths from the main mass of tumor and emphasize the need for the microscopic control of excision. Charts present the rates of cure in the three year and five year periods.

GEORGE L. WALDBOTT, Detroit, and JOHN J. SHEA, Dayton, Ohio:

Contact Dermatitis of the Hands - Localization, a Means of Causative Diagnosis: Photographs demonstrate (1) contact lesions of the hands, (2) the respective causative objects in contact with the hands and (3) fingerprint ink designs of the patterns produced on the hands. The patterns of the lesions are classified according to the size and shape of the causative objects; this makes it possible to catalogue such agents and their patterns for diagnostic purposes. Photographs illustrate how the original patterns are modified by such factors as secondary contact sensitization (e.g., ointments), complicating atopic irritations (ingested food, inhaled substances and the like), secondary infection and previously existing cutaneous lesions.

EDWARD D. DeLAMATER and ROBERT R. KIERLAND, Mayo Clinic, Rochester, Minn.:

Blastomycosis - Blastomyces Dermatides: The exhibit includes a consideration of the clinical features of blastomycosis, both cutaneous and systemic, its history, differential diagnosis and treatment. An exposition of the mycologic routine necessary to diagnose the disease (including direct tissue examination, histopathology, cultural characteristics and animal inoculation) is given. Experimental mycologic aspects of blastomyces including cytology, cultural variation and animal innoculation are presented.

Section on Nervous and Mental Diseases

The representative to the Scientific Exhibit from the Section on Nervous and Mental Diseases is A. B. Baker, Minneapolis.

ROBERT D. WOOLSEY, St. Louis University School of Medicine, St. Louis:

Differential Section of the Fifth Nerve for Trigeminal Neuralgia: Charts indicate symptoms and differential diagnosis, along with anatomic drawings of the fifth nerve and its connections; drawings of operative procedure are presented.

W. JAMES GARDNER and E. C. WEIFORD, Cleveland Clinic, Cleveland:

Closure of Defects of the Skull with Tantalum: The exhibit represents the experience with 106 cases of tantalum cranioplasty in civilian practice. The cases are divided into four groups. Transparencies and photographs illustrate the technic and the results in the various types of cases. Group 1 consists of the repair of old healed cranial defects; group 2, the repair of fresh operative cranial defects; group 3, the repair of recent contaminated traumatic defects, and group 4, the repair of defects in the presence of frank infection.

JOSEPH A. LUHAN, Loyola University School of Medicine and Cook County Hospital, Chicago:

Pathology of Nervous Disorders: Transparencies, photographs and photomicrographs of neuropathologic material routinely encountered in a large general hospital stress conditions of special interest to practitioners, particularly the appearances of the gross specimens in cerebral vascular accidents, brain trauma and infectious, degenerative and neoplastic diseases of the central nervous system. Typical microscopic appearances in some common disorders, particularly epidemic poliomyelitis, are shown.

FREDERIC A. GIBBS, Illinois Neuropsychiatric Institute, Chicago:

Electroencephalography as a General Hospital Service: Original records, diagrams and charts are presented to show the practical value of electroencephalography in neurology, psychiatry, neurosurgery, orthopedics, pediatrics, internal medicine, ophthalmology and otology. The exhibit shows how to set up an electroencephalographic service and gives recommendations for space allocation, staffing, selection of instrument, patient load, supplies, cost factors, installation and depreciation.

W. HORSLEY GANTT and WINTHROP M. PHELPS, Johns Hopkins Hospital, Baltimore, Md.:

The Conditional Reflex Function in Psychiatric and Neuromuscular Disorders: A method is described of measuring the rate of formation of new conditional reflexes, differentiation of stimuli, sensitivity to tactile perception and to pain, latent period, retention, character of muscular movements, stability and susceptibility to disturbances involving conflict. The results obtained are characteristic of certain neuroses, psychoses and muscular disorders. Furthermore, functional disturbances can be differentiated from the organogenic (e.g., brain tumor) and toxicogenic (e.g., endocrine or alcoholic).

GEORGE N. THOMPSON and J. M. NIELSEN, University of Southern California School of Medicine and Los Angeles County General Hospital, Los Angeles:

Area Essential to Consciousness-Cerebral Localization of Consciousness as Established by Neuropathologic Studies: Exhibit demonstrates the area essential to consciousness in the brain. The material has been obtained from 16 cases in which neuropathologic verification was obtained. These studies revealed that bilateral thalamic lesions result in impaired consciousness to a degree of lethargic stupor from which the patient can be partially aroused. Either bilateral thalamic lesions or hypothalamic lesions alone may produce this syndrome. Lesions of the junction of the hypothalamus and of the subthalamus with the mesencephalon result in deep coma from which no degree of recovery is possible. Both the stupor and coma are permanent and irreversible. It is concluded that the engram system essential to crude consciousness is located where the mesencephalon, subthalamus and hypothalamus meet.

Section on Preventive and Industrial Medicine and Public Health

The representative to the Scientific Exhibit from the Section on Preventive and Industrial Medicine and Public Health is Paul A. Davis, Akron, Ohio.

HERMAN E. HILLEBOE, FRANKLYN B. AMOS and GRANVILLE W. LARIMORE, New York State Department of Health, Albany:

Public Health as a Career: The exhibit portrays for the physician the splendid opportunities now offered by a career in public health. It presents typical examples of the activities of public health physicians together with information on positions now available and a brief description of the program of postgraduate fellowships for the training of public health physicians being provided by New York and other states.

W. W. BAUER, WILLIAM W. BOLTON, DEAN F. SMILEY and FRED V. HEIN, Bureau of Health Education, American Medical Association, Chicago:

Medical Examinations of School Children: An exhibit illustrating the values of careful medical examination of school children and contrasting the pediatric type of examination with the hurried cursory inspection done in some schools. The role of the physician as a school medical adviser rather than a mere medical inspector is stressed.

ROBERT W. QUINN, Section of Preventive Medicine, Yale University School of Medicine, New Haven:

Rheumatic Heart Disease—A Study in Differential Prevalence in Rural and Urban Children in Connecticut: The exhibit shows the results of a statewide rheumatic heart disease survey of rural and urban Connecticut school children carried out in 1946, 1947 and 1948, along with some of the epidemiologic factors considered to be significant in rheumatic fever and rheumatic heart disease in Connecticut. The effect of crowding in the home on the rheumatic fever and rheumatic heart disease rates is shown.

AUSTIN SMITH and HAROLD D. KAUTZ, Council on Pharmacy and Chemistry, American Medical Association, Chicago:

Serums and Vaccines in Communicable Diseases: The exhibit covers the prophylactic and therapeutic application of serums and vaccines recognized in New and Nonofficial Remedies and the official compendiums. A simplified classification of serums and vaccines is shown, together with examples of various types of serums and vaccines, and illustrations of the disease manifestation or epidemiologic aspect of significance in the use of a particular agent. A pamphlet is available for distribution.

CHARLES WALTER CLARKE, American Social Hygiene Association, New York:

Serologic Tests for Syphilis in Industries—Exposition of Growth of Serologic Testing Among Industrial Workers: The exhibit deals with the growth of serologic tests for syphilis among industrial workers from 1929 to date and includes the results of three inquiries made by the American Social Hygiene Association regarding "blood testing in industry" in 1929, 1941 and 1947. The practices which should be followed in connection with blood testing in industry are set forth. Publications dealing with the subject will be presented for free distribution.

O. P. KIMBALL, Goiter Study Committee of the American Public Health Association, Cleveland:

Prevention of Endemic Goiter: The exhibit consists of wax models of different types and stages of thyroid changes. Distribution of endemic goiter in the United States, especially in Michigan, West Virginia and Ohio, before and after iodized salt prophylaxis is presented. Photographs describing clinical evidence and stages before and after treatment are shown.

J. S. BENGSTON, C. N. BRAMER, R. C. KLUSSENDORF and W. A. YOUNG, American Veterinary Medical Association, Chicago:

Rabies in Animals: The exhibit shows pictures of animals susceptible to rabies. There is a map showing distribution of rabies in 1946 and a table giving the incidence of rabies in recent years. One panel shows pictures of the procedure followed in making a diagnosis and outlines control measures that work.

ALBERT W. HILBERG, National Cancer Institute, U. S. Public Health Service, Bethesda, Md., and GEORGE N. PAPANICOLAOU, Cornell University Medical College, New York:

The Cytologic Test for Cancer: The exhibit shows photomicrographs of endocervical, vaginal, sputum and urine smears, both normal and atypical. There will be a demonstration with microscopes and slides of the smears to show how the cytologic tests are read.

J.G. TOWNSEND and H.T. CASTBERG, Industrial Hygiene Division, U.S. Public Health Service, Washington, D.C.:

Occupational Disease in Differential Diagnosis: The exhibit stresses the importance of taking an occupational history of every patient to discover possible hazardous exposures. Such information will assist in making the differential and the final diagnosis of an illness. Pathologic and physical observations are shown which may result from either occupational or nonoccupational diseases.

ESTELLA FORD WARNER, U.S. Public Health Service, States Relations Division, Washington:

Extension of Local Health Services: The exhibit consists of maps of the United States, indicating those areas of the country now covered by adequately staffed full time local health departments, the areas of the country now covered by full time local health departments and the organizational pattern suggested by the American Public Health Association completely to cover the United States with full time local health departments.

W.S. WHEELING and H.A. SLESINGER, Windber Hospital, Windber, Pa.:

Anthracosilicosis in the Bituminous Coal Miner: Transparencies of roentgenograms and electrocardiograms of anthracosilicosis are shown, together with charts of pertinent clinical and laboratory data.

REX H. WILSON, GLENN V. HOUGH and WILLIAM E. McCORMICK, Medical Division, B. F. Goodrich Company, Akron, Ohio:

Medical Problems Encountered in the Manufacture of American-Made Rubber: In toxicologic review of the components used in the manufacture of American-made rubber (synthetic rubber) special emphasis is placed on the proper methods of handling and the treatment of persons accidentally overexposed.

PAUL C. CAMPBELL JR., DONALD J. BIRMINGHAM and ROBERT A. SAMMONS, Industrial Hygiene Division, U. S. Public Health Service, Washington, D.C.:

Use and Abuse of the Patch Test: The exhibit presents clinical illustrations and academic facts pertinent to the basic principles of patch testing, the use of the patch test as a diagnostic procedure and conclusions regarding the correct interpretation of positive and negative reactions.

JAMES R. WILSON, Council on Foods and Nutrition, American Medical Association, Chicago:

Vitamin D Milk Program: This exhibit is designed to emphasize (1) the extent of the vitamin D milk program, (2) the degree to which the physician can rely on the vitamin D potency of fortified milk and (3) the desirability of checking the continued reliability of fortified products used by means of biologic assays on "surprise" samples conducted or sponsored by health authorities.

WILLIS S. KNIGHTON, FRANKLIN M. FOOTE and VIRGINIA SMITH BOYCE, National Society for the Prevention of Blindness, New York:

Glaucoma Means Potential Blindness: Charts, posters and graphic devices illustrate signs and symptoms of glaucoma easily recognizable during a general physical checkup.

OREN C. DURHAM, Abbott Laboratories, North Chicago:

Hay Fever Pollen Hazards. Field Studies and Atmospheric Surveys in National Parks and Recreational Areas: A graphic presentation shows the degree of contamination of the air with hay fever pollens throughout the year or at least during the season of heavy patronage in most of the major National Park areas. Most of the Western parks have been found to be free or practically free from ragweeds and ragweed pollen. Other hazards than ragweed have, however, been given due consideration. A gallery of hay fever plants is shown together with the standard gravity slide technic of pollen counting as developed by the exhibitor and approved by the Aero-Allergen Council of the American Academy of Allergy.

ALFRED R. ROOS and JOHN C. ROOS, College of Medical Evangelists, Los Angeles:

Hay Fever Research in the Pacific Southwestern States - Visual Education in Allergy:

The exhibit includes paintings of typical species of allergic importance, charts showing pollination seasons of the different groups, charts showing plant counts in important species, maps showing the complicated distribution of various species, photographs showing abundance of various species close to thickly inhabited areas and specimens of typical plants. Basically the problem of hay fever and pollinosis in its broader aspects in this report is an accurate determination of the local flora. The long pollinating season, the varied geographic and climatic conditions and the unusual diversity and complexity of hay fever-producing plants contrast decidedly with the relative simplicity of the Eastern flora.

Section on Urology

The representative to the Scientific Exhibit from the Section on Urology is John H. Morrissey, New York.

FRED Z. HAVENS, Mayo Clinic, Rochester, Minn.:

Hypospadias-Surgical Correction: The exhibit shows models, photographs and drawings of (1) the various types and degrees of hypospadias and (2) the technic of the surgical treatment of this deformity by *(a)* the use of Edmunds' operation for correction of the chordee and *(b)* the use of the inlying tubular graft for reconstruction of the missing portion of the urethra. A statistical analysis of the results in 36 cases in which surgical treatment has been completed in the last five years is presented.

ALBERT E. GOLDSTEIN, Sinai Hospital and University of Maryland School of Medicine, Baltimore:

Studies in Polycystic Renal Disease: Drawings of the original operation including many specimens are displayed. Diagnosis is stressed particularly in the early cases in which the author believes that relief can be obtained. No absolute cures are possible, but prolongation of life is a factor. A new operative procedure is demonstrated. Pathology is discussed in detail.

ROGER W. BARNES and IVAN E. MARTIN, College of Medical Evangelists, Los Angeles:

Vesicovaginal Fistula: The exhibit shows the technic used for the repair of vesicovaginal fistula, using the inverted lithotomy position and fine catgut. The diagnosis and differential diagnosis and the etiology of vesicovaginal fistula are shown.

ARCHIBALD PERRIN HUDGINS, Charleston, W. Va.:

Perineal Dissection for Repair: The exhibit presents variations in technic in the perineal dissection. The advantages include ease and precision in anatomic dissection; blood loss is minimized and tissues are well exposed and identified for accurate approximation. This procedure is applicable when tissues are friable, and it is time-saving.

IRENE A. KOENEKE, V. E. CHESKY, G. A. WESTFALL, L. E. PECKENSCHNEIDER and THOMAS L. FOSTER, Hertzler Clinic, Halstead, Kan.:

Conservative Pelvic Surgery: Moulages show circulation of the female pelvis and maintenance of this circulation in conservative operations on the uterus and ovaries. The relation of genital and urinary problems is presented, based on the symptoms and observations in 1,000 cystocopic examinations on the female. The effect of castration and the accompanying psychiatric problems are depicted.

LAURENCE F. GREENE, Mayo Clinic, Rochester, Minn.:

Urinary Incontinence in Females Due to Ectopic Ureter: Urinary incontinence may occur in females as a result of ectopic ureters. In this condition the ureter, instead of entering the bladder, opens into the urethra or the vestibule of the vagina and a constant, uncontrollable escape of urine occurs. This distressing anomaly can be easily recognized and completely cured by proper surgical procedures. In addition to illustrative roentgenograms, the exhibit includes a transparent animated model which demonstrates the mechanics of the incontinence.

HARRY R. TRATTNER, St. Vincent Charity Hospital and Cleveland City Hospital, Western Reserve University, School of Medicine, Cleveland:

Improved Radiopacity in Intravenous Urography Prevention of Reactions from Contrast Medium: Comparative studies made from analysis of 1,000 intravenous urograms in normal and pathologic cases are shown. They include variations in density shadows cast by the contrast medium (only "diodrast" employed) in relation to alteration of reaction of urine. Urographic comparisons are as follows: (1) no attempt to change urinary reaction, for purpose of control; (2) administration of acid or alkali prior to urography; (3) urography following acidification and repeated in the same patient after alkalinization. Directions are given for intravenous tolerance test, classification, etiologic basis and method to prevent reactions to the contrast medium.

GEORGE F. CAHILL and M. M. MELICOW, Presbyterian Hospital, Columbia University, New York:

Somatosexual Aberrations in Infants and Children – Role of Adrenal Cortex: Somatosexual aberrations in infancy and childhood can cause doubt and sometimes error in determining sex. The exhibit includes case histories and photographs of genetic females erroneously brought up as males and vice versa. The steps necessary in determining the true sex are outlined and the role of the adrenal cortex discussed. Cases fall into two main groups: (1) infants and children with somatosexual abnormalities without demonstrable adrenocortical enlargement, but with suggestive clinical and laboratory evidence, *(a)* in genetic females; *(b)* in genetic males; (2) infants and children with somatosexual abnormalities with demonstrable adrenocortical enlargement or tumor, as well as clinical and laboratory evidence, *(a)* in genetic females; *(b)* in genetic males.

Section on Orthopedic Surgery

The representative to the Scientific Exhibit from the Section on Orthopedic Surgery is Tom Outland, Elizabethtown, Pa.

HARRY B. MACEY, Scott and White Hospital, Temple, Texas:

Plastic Procedure for Lymphedema of the Extremities: Exhibit demonstrates plastic procedure for the treatment of disabling lymphedema of the upper and lower extremity, demonstrated by the use of moulages and photographs of patient both before and after surgical intervention.

VERNON L. HART and WESLEY H. BURNHAM, Minneapolis:

Congenital Displacement of the Hip Joint During Infancy—Early Recognition and Treatment: It is rare for physicians to treat congenital dislocation and congenital subluxation of the hip before the age of walking because of failure to recognize the malformation in infancy. These malformations present a common etiologic background and may be diagnosed by simple clinical signs. The chief of these are limitation of abduction, shortening of the thigh and the presence of asymmetric skin folds. The early recognition of congenital displacement of the hip permits treatment before secondary changes take place and insures the best possible functional and anatomic result from treatment.

NORMAN L. HIGINBOTHAM and BRADLEY L. COLEY, Memorial Hospital, New York:

Tumors of Bone—Indications for Conservative Surgery: Exhibit consists of charts and photographs of roentgenograms depicting several cases of bone tumors in which conservative measures were feasible in lieu of radical amputation. The indications for conservative measures are emphasized.

EMIL D. W. HAUSER, Chicago:

Cohesive Bandage for Treatment of Clubfoot in the Newborn: A procedure is described which enables the treatment of clubfoot immediately after birth. The technic consists in using cohesive bandage, which will adhere to itself but will not stick to the skin. This is reinforced with waterproof tape. Analysis is made of the various components of the deformity. The method for correcting each component is described, and the order in which they should be corrected is given.

M. G. HARDINGE, College of Medical Evangelists, Loma Linda, Calif.:

Self-Adjusting Hip Bolt and Nail Guide: The exhibit includes (1) a self-adjusting hip bolt which consists of an inner and an outer member so constructed that the proximal end of the outer member is expanded within the head of the femur and the distal end of the inner member is attached to the lateral shaft of the femur. Shortening of the bolt is permitted, but a locking device prevents lengthening. (2) A nail guide for hip nailing is attached to the lateral aspect of the subtrochanteric area. Two guide arms extend, one anterior to and the other lateral to the head nnd neck of the femur, thus affording three dimensional perspective for accurate nail placements.

EARL D. McBRIDE, University of Oklahoma School of Medicine, Oklahoma City:

Lumbosacral Fusion—Wedged Bone Block: A comparatively simple technic of fusing the lumbosacral joint is demonstrated. It consists of dovetailing a block of bone into a rectangular slot, accurately excavated across the articular facets. A buttress is formed by the lamina below and the facets above, in which to apply the principle of distraction by spreading the laminae into flexion. This is one of the important advantages of the procedure. It provides immediate stabilization following removal of the disk. It eliminates severe chipping of the bone tissues, which commonly results in the various methods of Hibbs or Albee modifications. A cadaver specimen is used for demonstration, together with roentgenograms of results. One hundred and twenty-five patients have been surgically treated by this method, and a report has been made on the roentgenologic results of fusion in 38 cases, one to two years after operation.

GARRETT PIPKIN, St. Joseph's Hospital, Kansas City, Mo.:

Indefinite Knee Symptoms Resembling Injured Cartilages: The exhibit illustrates the variations in anatomy of the suprapatellar pouch caused by the communication of the suprapatellar pouch with the knee joint. It is normal for a suprapatellar plica (fold) to occur in the synovia. This fold may become fibrosed, hyalinized or calcified and cause symptoms simulating closely a disturbance of the semilunar cartilage.

LAURENCE JONES, Cedars of Lebanon Hospital, Los Angeles:

Chronic Low Back Pain, Fatigue and Nerve Root Pains (Sciatica)—A Symptom Complex Caused by Foot Imbalance: Drawings illustrate the mechanism causing the symptom complex. The anatomic changes due to primary internal rotation of the feet causing secondary internal rotation of the leg, anterior pelvic tilt with spinal cord tension and root pains at various levels are shown. The varied symptoms are low back pain, fatigue and various types of neuralgias. A fixed and entirely different method of correction of foot posture reverses the preceding changes and brings relief of pain. A radiographic demonstration of the measured change in lumbosacral angle that accompanies changes in foot position is presented. Statistical tables from four different sources will demonstrate approximately 300 cases of chronic low back pain accompanied by different types of neuralgias and sciaticas.

WILBERT McGAW, HAROLD E. SNEDDEN, J. MUCKLEY and MAURICE D. SACHS, Veterans Administration Hospital, Cleveland:

Pneumarthrography of the Knee-An Aid in the Diagnosis of Internal Derangements: The exhibit consists of numerous transparencies showing the technic of air insufflation, roentgenograms of normal knee joints, various types of medial and lateral meniscus tears, cysts, tumors and osteochondritis dissecans. Each roentgenogram is accompanied by a diagrammatic, anatomic sketch and a brief summary of the clinical, surgical and pathologic observations and the end results.

PAUL R. LIPSCOMB, A. M. McKELVIE, A. C. WALSH and J. D. BARGER, Mayo Clinic, Rochester, Minn.:

Alkaline Phosphatase after Transplant of Fresh and Frozen Bone and in Bone Disease: The technic of staining decalcified bone for the presence of alkaline phosphatase is briefly presented. By photomicrographs which show the presence of the enzyme, the regeneration of new bone in rabbits after autogenous transplants can be clearly followed. Likewise, the presence of alkaline phosphatase in a few bone tumors and orthopedic diseases is demonstrated. Half of the exhibit is devoted to a comparative study in the experimental animal of osteogenesis after the transplantation of frozen homogenous bone. This is demonstrated by roentgenograms and by microscopic sections stained to show the presence of alkaline phosphatase.

Section on Gastro-Enterology and Proctology

The representatives to the Scientific Exhibit from the Section on Gastro-Enterology and Proctology are Donovan C. Browne, New Orleans, and J. P. Nesselrod, Evanston, Ill.

DAVID ADLERSBERG and JOSEPH SCHEIN, Mount Sinai Hospital, New York:

Primary and Secondary Sprue-Clinical and Pathologic Studies: Clinical differentiation of the two types of sprue is possible on the basis of duration of symptoms, oral lesions, hematologic changes and response to therapy. Gastrointestinal findings and chemical analyses of blood, duodenal contents and feces are similar in both groups. The pathologic changes consist of hyaline band formation in the villi, trabeculation of the mesenteric nodes, deposition of pigment in the small intestine and varying degrees of pancreatic fibrosis in primary sprue; of amyloid involvement, abdominal lymphosarcomatosis and intestinal lipodystrophy in secondary sprue.

EDWARD LEVY and ANGELO SALA, New York City Cancer Institute, New York:

Anorectal Canal-Anatomic Basis for Examination and Diagnosis: Review of the formation of the anorectal canal provides a general scheme of its clinical architecture. Organization of the muscular components together with their nerve and blood supply gives a basis for anatomic physiology. The epithelial lining, with some gross and microscopic characteristics of malignant disease, is demonstrated. Methods for examination and diagnosis are discussed. A glossary of terms in general use is given. A nomenclature based on anatomic and physiologic grounds is offered as a standard.

HARRY L. SEGAL, JAMES S. WATSON JR., SYDNEY A. WEINBERG, University of Rochester School of Medicine and Dentistry, Rochester, N.Y.:

Gastroscopic Color Photography: The exhibit shows the development of photography of the inside of the stomach. Emphasis is placed on the results in color secured through the flexible gastroscope by means of an external camera and a special power and synchronization unit developed by the exhibitors. The color transparencies obtained in normal patients, as well as in patients with gastritis, gastric ulcer, carcinoma, etc., are displayed. The histories, roentgenograms and photographs of the patients are correlated.

CECIL O. PATTERSON and MILFORD O. ROUSE, Southwestern Medical College, Dallas, Texas:

Differential Diagnosis of Gastric Carcinoma: The exhibit emphasizes the high incidence of gastric neoplasm, stresses the need for earlier and more thorough diagnoses of stomach disorders and demonstrates the characteristic appearance of stomach lesions which are malignant, potentially malignant and benign. Original color drawings of gastroscopic views, photographs of tissue sections, roentgenograms and gross specimens are presented, with condensed case histories and charts.

ALBERT J. SULLIVAN, THOMAS E. McKELL and FREDERICK C. REHFELDT, Ochsner Clinic, New Orleans:

Etiology of Peptic Ulcer-A Psychosomatic Study: There are many etiologic factors involved in the production of peptic ulcer. This exhibit is concerned with the theory of multiple etiology, and a clarifying formula in terms of constitutional, personality, environmental, traumatic and " X " factors is presented. The major personality types and the precipitating emotional situations involved are discussed. Observations based on personality studies as well as medical surveys on 1,000 cases of peptic ulcer are summarized. From the data obtained from certain clinical groupings it is possible to make valid diagnostic and prognostic conclusions. Representative case histories will be available.

MALCOLM R. HILL, CARROL S. SMALL and LEE J. RICHARDS, College of Medical Evangelists, Loma Linda and Los Angeles:

A Study of the Development of Anal Ducts and Glands with Particular Reference to the Pathogenesis of Anorectal Disease: Exhibit consists of models and photomicrographs representing a study of the development of anal glands in forty-nine fetuses, ranging in size from 9.5 to 38 cm. Correlation is made with a previous study of various age groups together with clinical consideration as to histopathology of anorectal disease.

HAROLD R. ROSSMILLER, Cleveland Clinic, Cleveland:

Gastroscopic Examination: Demonstrations of the method, value and limitations of gastroscopic examination in the diagnosis of intragastric lesions are presented and a human model and case histories with roentgen and gastroscopic findings are included.

ELMER H. LOUGHLIN, SAMUEL H. SPITZ and RICHARD H. BENNETT, with the assistance of JEROME B. MARGOLIES, Long Island College of Medicine and Long Island College Hospital, Brooklyn:

Diagnosis of Helminth and Protozoal Infections of the Gastrointestinal Tract: Diagnostic technics considered from the aspects of practicability and comparative efficacy when employed in hospital as well as private practice, including a systematic approach in the diagnosis of these infections, are presented.

Section on Radiology

The representative to the Scientific Exhibit from the Section on Radiology is S. W. Donaldson, Ann Arbor, Mich.

J. GERSHON—COHEN and A. G. COOLEY, Philadelphia:

Facsimile Roentgenography: The exhibit consists of transmission and reception apparatus to demonstrate facsimile transmission of roentgenograms and the applications of this medium in solving the roentgenologic services for small community, small hospitals, ships at sea, outlying centers where radiologists are not available, etc.

BENJAMIN FELSON, University of Cincinnati, Cincinnati:

Significance of Appendical Calculi: The incidence of appendical calculi, their frequent association with acute appendicitis and the simplicity of their diagnosis by means of roentgen studies are demonstrated on charts and roentgenograms. The infrequency of appendical calculi in the normal appendix and their frequency in acute appendicitis (obtained from roentgenographs of a large number of surgical and autopsy specimens) are stressed.

HEINZ S. WEENS, JAMES V. WARREN, DAVID F. JAMES and HERBERT M. OLNICK, Emory University School of Medicine, Atlanta, Ga:

Contrast Visualization of the Vascular System: The exhibit demonstrates recently developed methods of roentgen visualization of the vascular system in man. It includes (1) constrast visualization of the heart chambers, pulmonary artery and aorta in various important clinical conditions; (2) visualization of the superior and the inferior vena cava in normal and pathologic states with emphasis on venous obstruction and the pattern of collateral circulation, and (3) a simple method of contrast visualization of the vascular system of the kidneys (nephrography).

LEE A. HADLEY, Syracuse, N.Y.:

Intervertebral Foramen Studies: Dissections of normal and abnormal intervertebral foramina mounted in transparent plastic together with the roentgenogram and stained sections from the specimen are presented. Roentgenograms of patients show different types of foramen encroachment. (1) physiologic; (2) traumatic; (3) degeneration of intervertebral disk with *(a)* spur formation backward from the disk margin, *(b)* spur formation forward from the posterior articulation, *(c)* pedicles coming closer together, *(d)* subluxation with telescoping of the posterior articulation forward into the foramen and wedging forward of the underlying body and *(e)* hyperplasia of the posterior capsule or ligamentum flavum; (4) disk substance bulging backward into the foramen causing nerve root pressure. The symptoms of nerve root pressure have unfortunately come to be diagnosed as "herniation of the nucleus pulposus." This is usually sought in the spinal canal. Too often the area of real pressure is overlooked, being situated more laterally in the less accessible intervertebral foramen.

C. C. BIRKELO and W. L. BROSIUS, Herman Kiefer Hospital, Detroit, and Tuberculosis Control Division, U. S. Public Health Service, Washington, D.C.:

Pulmonary Diseases—Correlation of Roentgenologic and Pathologic Findings: The exhibit consists of reproductions of antemortem and postmortem roentgenograms illustrating changes in pulmonary disease, including changes in the arterial system. Sectioned gross specimen photographs of each case are shown and a brief case history reproduced.

Section on Anesthesiology

The representative to the Scientific Exhibit from the Section on Anesthesiology is Urban H. Eversole, Boston.

JOHN ADRIANI and JOHN P. HOWARD, Charity Hospital and Louisiana State University School of Medicine, New Orleans:

Some Common Errors in the Management of Spinal Anesthesia: The errors commonly made in inducing and managing spinal anesthesia which lead to avoidable accidents, failures, untoward reactions and death are shown by means of photographs, charts and graphs. Each error or breach of technic is shown together with the correct or accepted method and explanation of the fundamental principles which are violated.

RICHARD C. THOMPSON and WILLIAM B. NEFF, Stanford University School of Medicine, San Francisco:

Newer Analgesic Drugs in Anesthesiology: The exhibit presents an experimental and clinical comparison of morphine with meperidine and several new closely related analgesics for fortifying the pain-relieving and reflex-obtunding qualities of nitrous oxide and oxygen anesthesia; graphs and kymographic records are shown

ALBERT FAULCONER JR., Mayo Clinic, Rochester, Minn.:

An Acoustic Gas Analyzer for Research in Anesthesiology: An acoustic method for the continuous determination of the percentage of constituents in certain gas mixtures is described. The use of this instrument with certain other devices for measuring physiologic variables is discussed and examples of photographic records obtained in these studies are presented. The possibility of adapting this equipment to other types of study is discussed.

J. EUGENE RUBEN, PATRICIA-MARY KAMSLER and W. LYALL HOWELL JR., Philadelphia General Hospital, Philadelphia:

Prolonged Spinal Anesthesia for Surgical Reduction of Hip Fracture: The exhibit consists of charts, diagrams and illustrations describing the technic of unilateral spinal anesthesia as used in old, poor risk patients and the results obtained with it.

Section on General Practice of Medicine

The representative to the Scientific Exhibit from the Section on General Practice of Medicine is M. B. Casebolt, Kansas City, Mo.

HAROLD M. CAMP, JAMES H. HUTTON, CHARLES P. BLAIR, FRANCES C. ZIMMER and ANN FOX, Illinois State Medical Society, Chicago and Monmouth:

The Doctor and His Medical Society: The organization and work of the society are shown. Through the committees of the society, the physician improves his own medical knowledge and facilities and thus better serves his patients. At the same time, he strives to educate the public in health problems and to stimulate activities which will carry sound policies into effect. The exhibit is amplified by material from the Committee on History, including a collection of old record books, an original membership certificate issued in 1841, some of the original transactions of the House of Delegates, old medical books, physicians' ledgers and record books one hundred years old or more, and schedules from about 1860.

DON H. DUFFIE, Central Lake, Mich.:

Practical Office Colorimetry - A Neglected Principle: Visual measurement of light transmission (not color matching) is presented. Speed, simplicity, economy and precision in determination of hemoglobin, dye excretion, etc., and also in the reading of colorimetric tests in general are stressed. The instrument is demonstrated.

J. O. KELLEY, J. C. GRIFFITH, L. J. VAN HECKE, C. SHERRILL RIFE and R. A. FRISCH, Medical Society of Milwaukee County, Milwaukee:

A County Medical Society Attacks Cancer--Activities of the Cancer Committee of The Medical Society of Milwaukee County: The organization of the Cancer Committee of The Medical Society of Milwaukee County is shown and its relationships to the various organizations interested in cancer. Specific projects undertaken by this committee include over-all community cancer statistical studies, projects in association with the American Cancer

Society, the establishment of cancer symposiums (professional education program), development of a cancer detection center and the sponsorship of teaching and research.

E. FULLERTON COOK, United States Pharmacopoeial Convention, Philadelphia:

United States Pharmacopoeia: The exhibit presents the thirteen standardized preparations of digitalis official in the Pharmacopoeia today, and reviews the development of digitalis preparations from the first U.S.P. of 1820, when only the tincture and infusion were official.

C. H. HEACOCK and L. W. KIBLER, Postgraduate Committee, Tennessee State Medical Association, Memphis:

Postgraduate Medical Education--Cancer Education by Medical Extension Plan: A map of Tennessee shows the ten circuit districts for postgraduate instruction in cancer. Within the circuit districts are shown also the forty-nine teaching centers where the postgraduate instruction is given under the extension plan for physicians. Charts show the agencies sponsoring the program with financial contributions and a history of ten years of postgraduate extension medical teaching with the results tersely stated in a comparative study.

ALBERT LEVIN, Biological Photographic Association, Pittsburgh:

Photography of Patients: Photographs in black and white and color, contributed by members of the Biological Photographic Association, illustrate the requirements of clinical photography for publication, teaching and records. Technical details accompany each picture. Special emphasis is placed on close-up work, such as the photography of skin lesions, etc. Experienced clinical photographers will answer questions about the materials, apparatus and methods used in the various fields of medical photography.

WILLIAM P. BOGER and J. Wm. CROSSON, Philadelphia General Hospital, Philadelphia:

Caronamide--Application to Enhancement of Penicillin Therapy: Caronamide orally administered results in the enhancement of penicillin plasma concentration by two to seven fold. The mode of action of this drug is presented schematically. The caronamide plasma concentrations resulting from various doses of the drug administered orally and parenterally are presented and also correlation of these concentrations and their effect on penicillin plasma concentrations. The effect of caronamide on penicillin plasma concentrations following the administration of both the usual and massive doses of the antibiotic is demonstrated. Dosage schedules of caronamide, practical clinical applications, untoward effects and influence of caronamide on other compounds are outlined.

ROBERT P. FISCHELIS, American Pharmaceutical Association, Washington, D. C.:

Pharmacy's Service to Medicine: The exhibit depicts various services of pharmacy to the practice of medicine as well as illustrations of the service of the laboratory of the American Pharmaceutical Association to standardization of drugs. It includes illustrations of drug standards found in the National Formulary, published by the Association, and data on the revision procedure and shows the work of the Division of Hospital Pharmacy, the Division of Prescription Practice and the Division of Publications of the American Pharmaceutical Association as they relate to the direct services provided for the practitioner of medicine.

MISCELLANEOUS EXHIBITS

Exhibits on various miscellaneous subjects are shown under this heading. They include a group of exhibits on diabetes, cancer, poliomyelitis and atomic energy.

WILLIAM T. DORAN, Department of Medicine and Surgery, Veterans Administration, Washington, D.C.:

The Medical Education Program of the Veterans Administration: The exhibit presents the structure and operation of the Veterans Administration medical education program separated into its chief component parts and showing the relation of each part to the others.

G. FOARD McGINNES, American National Red Cross, Washington, D.C.:

Disaster Medical Operations: The services of physicians and nurses at the scene of a disaster are shown, as well as the support given the physician through the first-aid services, the blood program, nursing, nutrition, canteen service and motor service.

ROBERT M. FINK and KAY FINK, Veterans Administration Hospital, Van Nuys, Calif.:

Filter Paper Partition Chromatography: The simple type of apparatus used in one and two dimensional filter paper partition chromatography will be on display. Sample chromatograms of amino acids, sugars, organic acids and other classes of compounds will be shown, as well as radioautographs prepared from chromatograms containing radioactive compounds. Included also will be diagrams describing the process and a demonstration of the process with colored compounds showing the gradual separation of the components of a mixture as the chromatogram is developed.

EVERETT S. ELWOOD, National Board of Medical Examiners, Philadelphia:

Qualifying Examinations for Entrance to Medical Practice: The exhibit describes the work and progress of the National Board of Medical Examiners and includes the results of its examinations as well as the use of these examinations by medical schools.

DONALD G. ANDERSON, F. H. ARESTAD, WILLIAM R. ALBUS, EDWARD K. REID, EDWARD H. LEVEROOS and WILLIAM W. CORBETT, Council on Medical Education and Hospitals, American Medical Association, Chicago:

Medical Education and Hospitals: The exhibit displays data on medical education, medical licensure, registration of hospitals, approval of internships, residencies and fellowships, schools for medical technologists, x-ray technicians, physical therapy technicians, occupational therapy technicians and medical record librarians. Revised lists of approved medical schools, hospitals approved for internships and residencies and fellowships and approved technical schools are shown.

Diabetes

HUGH L. C. WILKERSON, MALCOLM J. FORD, DONALD HARTING and ERICH HEFTMANN, Diabetes Section, U.S. Public Health Service, Boston:

Simplified Case Finding in Diabetes Control: There are presented new developments in diabetes case finding; exhibit and demonstration of a new, rapid, screening blood glucose test; blood sugar values on 2,000 "normal" persons from Brookline, Mass., in relation to time elapsed since last meal, and study of the incidence of diabetes in relatives of a known group of diabetic persons in Jacksonville, Fla. Physicians are invited to have the screening blood glucose test or they actually may perform the tests themselves.

SAMUEL SOSKIN, RACHMIEL LEVINE and HARRY F. WEISBERG, Michael Reese Hospital, Chicago:

Diabetes—Disturbance in Blood Sugar Regulation: The exhibit describes the homeostatic mechanism for the regulation of the blood sugar level, the roles of the endocrine glands in this regulation and the manner in which this regulation is disturbed in experimental diabetes and in diabetes mellitus. Included also is material on the application of this knowledge to the treatment of diabetes mellitus. With this material as a background, the focus of interest in the exhibit will be a working machine representing a mechanical analogy of the blood sugar-regulating mechanism. By means of the level of water in a tank, maintained by mutually regulated inflows and outflows, the machine will record graphs analogous to the normal dextrose tolerance curve. Various adjustments representing endocrine glands will produce abnormal tolerance curves analogous to those seen in endocrine disturbances.

EDWARD S. DILLON, Philadelphia, CHARLES H. BEST, Toronto, GEORGE E. ANDERSON, Brooklyn, N. Y., and FRANK N. ALLAN, Boston, American Diabetes Association:

Diabetes in 1948: The high incidence of hidden diabetes has been demonstrated through the case-finding surveys of the United States Public Health Service and other studies. For every 4 known cases, there may be found 3 cases previously unrecognized. It is now estimated that there are 1,000,000 hidden cases of diabetes in the United States. The American Diabetes Association has taken as a major objective in 1948 the effort to bring these persons with hidden diabetes to light--to find them, treat them and teach them.

HOWARD F. ROOT, ELLIOTT P. JOSLIN, PRISCILLA WHITE, ALEXANDER MARBLE, ALLEN P. JOSLIN, C. C. BAILEY and HERBERT H. MARKS, George F. Baker Clinic, New England Deaconess Hospital, Boston, and Metropolitan Life Insurance Company, New York:

Diabetes in Camp, Home and Hospital: The exhibit presents new data on arteriosclerosis in childhood diabetes compared with diabetes in young adults, treatment of pregnancy and coma, statistical data and plans for a new camp for diabetic boys.

Clinics and Conferences on Diabetes

Clinics and conferences on diabetes will be conducted by members of the George F. Baker Clinic and the American Diabetes Association under the chairmanship of Dr. Howard F. Root, Boston, in an area adjoining the group of exhibits on diabetes. Emphasis will be laid on a search for the million undiscovered persons with diabetes, earlier diagnosis and treatment to avoid coma, aggressive rather than expectant treatment, abolition of death from coma, special care for pregnant diabetics and the education of the patient in the fundamentals of diabetic treatment.

The program follows:

MONDAY, June 21

12 noon. *A Million Unknown Diabetics.* Elliott P. Joslin, Boston.

12:30 p.m. *Insulin and the Future.* Charles H. Best, Toronto.

1 p.m. *Interpretation of Blood Sugar Values.* Herman O. Mosenthal, New York.

1:30 p.m. *Diet and Insulin.* Henry T. Ricketts, Chicago.

2:00 p.m. *Acidosis and Coma.* Howard F. Root, Boston.

2:30 p.m. *Insulin Difficulties, Allergy, Atrophy.* Henry B. Mulholland, Charlottesville, Va.

3:00 p.m. *Cushing's Syndrome.* A. L. Chute, Toronto.

3:30 p.m. *Hypoglycemia.* Charles W. Styron, Raleigh, N. C.

4:00 p.m. *Childhood Diabetes.* Priscilla White, Boston.

4:30 p.m. *Insulin Resistance.* I. Arthur Mirsky, Cincinnati.

5:00 p.m. *Advantages of Insulin in Early Treatment.* Walter H. Nadler, Chicago.

TUESDAY, June 22

9:00 a.m. *Arteriosclerosis.* George E. Anderson, Brooklyn.

9:30 a.m. *Diabetic Feet.* William H. Olmsted, St. Louis.

10:00 a.m. *Ketosis and Diabetes.* Rollin T. Woodyatt, Chicago.

10:30 a.m. *Pregnancy and Diabetes.* Priscilla White, Boston.

11:00 a.m. *Diabetic Neuropathy.* R. Wayne Rundles, Durham, N. C.

11:30 a.m. *Case Finding Surveys. U. S. Public Health Service.* Hugh L. C. Wilkerson, Boston.

12 noon. *New Blood Sugar Method.* Erich Heftmann, Boston.

12:30 p.m. *Diabetes Today.* Elliott P. Joslin, Boston.

1:00 p.m. *Blood Sugar Levels.* Edward S. Dillon, Philadelphia.

1:30 p.m. *Treatment During Surgery.* Howard F. Root, Boston.

2:00 p.m. *Diet and Treatment.* Frank N. Allan, Boston.

2:30 p.m. *Hyperinsulinism.* Jerome Conn, Ann Arbor, Mich.

3:00 p.m. *Diabetes During Surgery.* E. Paul Sheridan, Denver.

3:30 p.m. *Diabetes in Childhood.* Henry J. John, Cleveland.

4:00 p.m. *Use of Insulin.* Harry H. Bromley, Cleveland.

4:30 p.m. *Transmetatarsal Amputations.* Clifford C. Franseen, Boston.

WEDNESDAY, June 23

9:30 a.m. *Pregnancy.* Lester J. Palmer, Seattle, Wash.

10:00 a.m. *Control of Diabetes.* Elliott P. Joslin, Boston.

10:30 a.m. *Treatment of Diabetic Feet.* Frederick W. Williams, New York.

11:00 a.m. *Diabetic Coma and Potassium Deficiency.* Howard F. Root, Boston.

11:30 a.m. *Diagnostic Problems.* Chester Coggeshall, Chicago.

12 noon. *Emergencies.* Allen P. Joslin, Boston.

12:30 p.m. *Diabetic Neuritis.* Thomas P. Sharkey, Dayton, Ohio.

1:00 p.m. *Interpretation of Diabetic Statistics.* Herbert H. Marks, New York.

1:30 p.m. *Hyperinsulinism.* Alexander Marble, Boston.

2:00 p.m. *Arteriosclerotic Complications.* Byron D. Bowen, Buffalo, N. Y.

2:30 p.m. *Insulin Resistance.* Leon S. Smelo, Birmingham, Ala.

3:00 p.m. *Intercapillary Glomerulosclerosis.* Henry T. Ricketts, Chicago.

3:30 p.m. *Hyperglycemia and Insulin.* Allen P. Joslin, Boston.

4:00 p.m. *Protection of Remaining Extremity in Diabetic Amputations.* Geza de Takats, Chicago.

4:30 p.m. *Thyroid and Pituitary Complications.* Howard F. Root, Boston.

THURSDAY, June 24

10:00 a.m. *Acidosis.* Howard F. Root, Boston.

10:30 a.m. *Treatment Before and After Surgery.* Blair Holcomb, Portland, Ore.

11:00 a.m. *Tuberculosis and Diabetes.* Howard F. Root, Boston.

11:30 a.m. *Intermediate Insulins.* Arthur R. Colwell, Evanston, Ill.

12 noon. *Complications, Including Hemochromatosis.* Alexander Marble, Boston.

12:30 p.m. *Control of Diabetes.* Joseph H. Barach, Pittsburgh.

1:00 p.m. *Management of the Ambulant Diabetic.* Allen P. Joslin, Boston.

1:30 p.m. *Hypoglycemia, Prevention and Treatment.* Cecil Striker, Cincinnati.

2:30 p.m. *Adenomata of the Pancreas.* Alexander Marble, Boston.

3:00 p.m. *Insulin Mixtures.* Franklin B. Peck, Indianapolis.

3:30 p.m. *Diabetic Coma.* Alexander Marble, Boston.

4:00 p.m. *Severe Diabetes.* Robert W. Keeton, Chicago.

4:30 p. m. *Emergencies (Diabetes "by Phone").* Allen P. Joslin, Boston.

FRIDAY, June 25

10:00 a.m. *Control of Diabetes.* Alexander Marble, Boston.

10:30 a.m. *Insulin and Early Diabetes.* Allen P. Joslin, Boston.

11:00 a.m. To be announced.

Cancer Detection

Cancer detection clinics and the importance of cancer detection in the physician's office will be presented under the auspices of the following committee:

Augusta Webster, Chicago, Chairman.
Charles Branch, Chicago.
M. Alice Phillips, Chicago.
F. Lee Stone, Chicago.
Danely P. Slaughter, Chicago.
Kate Edison, Chicago.

Following are the members of the Advisory Committee:

Bowman C. Crowell, American College of Surgeons, Chicago.
Brewster S. Miller, American Cancer Society, New York.
John A. Rogers, Illinois Division, American Cancer Society, Chicago.
James P. Simonds, Northwestern University Medical School, Chicago.
John A. Wolfer, Cancer Committee, Chicago Medical Society, Chicago.

Several of the hospitals in Chicago which conduct cancer detection clinics are also lending aid.

The exhibits will show the following:

Standards for Detection Centers, as set up by the American College of Surgeons.
History and Physical Examination Forms and Card Index.
Collection of Statistical Data.
Laboratory Data.
Roentgen Findings in Cancer.
General Physical Examinations.
Skin Cancer and Mucous Membranes.
Eye, Ear, Nose and Throat Examinations.
Cancer of the Male and the Female Genital Tract
Proctoscopic Examinations and Findings.
Cancer of the Breasts.

The exhibits will be accompanied by appropriate charts showing the incidents of accessible cancer, and the instruments needed for detection will be displayed.

Poliomyelitis

C. E. IRWIN and ROBERT L. BENNETT, Georgia Warm Springs Foundation, Warm Springs, Ga., with the assistance of the National Foundation for Infantile Paralysis, New York:

Treatment of Poliomyelitis: The seven stages of treatment of poliomyelitis are shown: (1) save patient's life, (2) prepare for motion, (3) coordinate function and increase strength, (4) increase functional activity, (5) evaluate functional capacity, (6) return home and (7) orthopedic surgery and assistive appliances.

Atomic Energy

HOWARD A. CARTER and FREDERIC T. JUNG, Council on Physical Medicine, American Medical Association,

Atomic Energy--Medical and Physical Aspects: This exhibit consists of (1) demonstrational apparatus, (2) charts and (3) reference material and reprints. There will be a demonstration periodically dealing with the mechanical and electrical makeup of a Geiger-Mueller counter. Charts will briefly describe the most recent information on the therapeutic and diagnostic uses of radioactive isotopes. Pamphlets containing a glossary of terms used in atomic energy and nuclear physics will be distributed. A primer on the medical aspects of atomic energy will be available.

The following consultants have contributed to this exhibit and will aid in the demonstrations:

Edwin C. Ernst, Barnard Free Skin and Cancer Hospital, St. Louis.
Hymer L. Friedell, University Hospitals of Cleveland, Cleveland.
Robert J. Moon, University of Chicago, Chicago.
Robert R. Newell, Stanford University, San Francisco.
Eugene P. Pendergrass, University of Pennsylvania, Philadelphia.
Edith H. Quimby, Columbia University, College of Physicians and Surgeons, New York.
Albert E. Shaw, University of Chicago, Chicago.
Shields Warren, New England Deaconess Hospital, Boston.
Stafford L. Warren, University of California, Los Angeles.
J. L. Weatherwax, American Oncologic Hospital, Philadelphia.

PAUL C. AEBERSOLD and B. G. SAUNDERS, Isotopes Division, and A. H. HOLLAND JR., Office of the Medical Advisor, Atomic Energy Commission, Oak Ridge, Tenn.:

Radioisotopes and Radiation: Exhibits include diagrams and charts explaining radioisotopes and radiation. Photographs explain how radioisotopes are produced in the chain-reacting pile at Oak Ridge and how they are handled and shipped. Charts show the distribution of isotopes according to isotope and geographic location. Illustrative material will be presented on the use of isotopes in therapy, diagnosis and medical research. Actual shipping containers for the various isotopes and representative samples of radioactive materials will be on display.

LEON O. JACOBSON, MATTHEW H. BLOCK, EDNA K. MARKS and EVELYN O. GASTON, Argonne National Laboratory and University of Chicago, Chicago:

Effect of Induced Anemia on Radiation Damage: The exhibit shows that in normal rabbits given a median lethal dose of roentgen radiation (800 r total body) anemia develops which reaches its maximum fourteen days after exposure; in animals that are already anemic by virtue of administration of phenylhydrazine or phlebotomies no further anemia develops after exposure to the median lethal dose of roentgen radiation. Photomicrographic illustrations demonstrate that this difference in effect is due to the virtually complete destruction of erythrocyte precursors in the normal animal after irradiation; in animals already anemic before irradiation, a sufficient number of erythrocyte precursors survive the irradiation to insure a normal production of erythrocytes.

MORRIS T. FRIEDELL, FENTON SCHAFFNER and Wm. J. PICKETT, Hektoen Institute for Medical Research of Cook County Hospital, Chicago:

Radioactive Isotopes—Index of Circulation in Peripheral Vascular Diseases; Effects of Treatment: Radioactive phosphorus or sodium is injected intravenously. Quantitative and qualitative estimates of circulation in normal persons and in persons with peripheral vascular diseases are made, using a Geiger counter. An index of circulatory efficiency is established in persons with normal peripheral circulation. This is compared with an index obtained from persons with peripheral vascular disease. The method of establishing this index and its significance are presented. Alterations of this index are displayed as indicative of relative effects and efficiencies of various methods of treatment of peripheral vascular disease.

DANIEL C. ELKIN and FREDERICK W. COOPER JR., Emory University School of Medicine, Atlanta, Ga.:

Radioactive Isotopes—Their Use as Tracers in Peripheral Circulatory Disturbances: Exhibit demonstrates the methods of utilizing radioactive sodium as a tracer in studies on the circulation. The results of studies are shown.

MYRON PRINZMETAL, ELIOT CORDAY, RAMON J. SPRITZLER and H. C. BERGMAN, Cedars of Lebanon Hospital, Los Angeles:

Radiocardiography—A Method for Studying the Flow of Blood Through the Heart by Means of Radioactive Isotopes: Graphic visualization of the flow of blood through the heart of intact man can now be achieved. Radioactive sodium (Na^{24}) is injected intravenously and traced with specially designed ink-writing Geiger-Mueller counters. One counter tube is placed over the precordium. The recorded curves then represent the blood as it is pumped through the chambers of the heart. The first ascent records the blood as it enters the right heart; as the right ventricle empties, the curve descends. The second wave rises as the blood returns from the pulmonary circuit to the left chambers and descends when the blood is expelled from the left ventricle. Records are shown which are characteristic of such heart conditions as congestive failure and congenital heart disease. The diagnostic and physiologic significance of this new method are demonstrated. Venous return is also easily traced by placing another counter tube over a vein between the site of injection and the heart. In this way, data has been obtained which has increased knowledge and understanding of venous thrombosis, the peripheral circulation and circulation time. Radiocardiography thus offers a new, graphic method for the study of hemodynamics.

UNITED STATES ARMY, UNITED STATES NAVY and UNITED STATES AIR FORCE, Department of National Defense, Washington, D.C.:

A General Practitioner in the Atomic Age: The Army, Navy and Air Force of the Department of National Defense will display jointly an exhibit designed to show the basic principles of radiation due to the explosion of an atomic bomb, the relationship of fission products to the practice of medicine and general information relative to internal and external injuries and the therapeutic principles applicable thereto.

HERMAN LISCO, MIRIAM P. FINKEL, AUSTIN M. BRUES and JANE GLASER, Argonne National Laboratory, Chicago:

Pathologic Effects of Radioactive Elements: The exhibit will consist of colored photographs indicating the pathologic changes encountered when plutonium and radioactive isotopes are administered to animals. These changes include hepatic diseases caused by plutonium and various types of tumors and skin changes due to radioactivity. There will also be reproductions of roentgenograms of animals showing bone changes.

PHILIP M. MORSE, ROBERT D. CONRAD and LESLIE F. NIMS, Brookhaven National Laboratory, and ELDON C. SHOUP, Associated Universities, Inc., Upton, N. Y.:

Research Facilities: The exhibit depicts the role of Brookhaven National Laboratory as the regional center for the Northeast in fundamental nuclear research. Brookhaven's principal purposes are to carry through fundamental research and to provide staff and research facilities for the training of scientists and for work being done by accredited scientists and institutions in the region. Acting as the agent for all the educational institutions in the Northeast, nine universities formed Associated Universities, Inc., a nonprofit corporation which is the contractor for the building and administration of the Laboratory under the auspices of the United States Atomic Energy Commission.

ROBERT T. NIESET, WALTER J. TRAUTMAN Jr., RALPH M. BELL, BLANCHE PORTER, WILLIAM PARSON, CHAMP LYONS and H. S. MAYERSON, Tulane University School of Medicine and Alton Ochsner Medical Foundation, New Orleans:

Measurements of Total Red Cell Mass with Patients' Cells Tagged with P^{32}: The exhibit shows a method for the determination of total red cell volume and its application to clinical problems. A 10 cc. sample of venous blood is incubated with radioactive phosphorus (P^{32}) and the tagged cells reinjected into the patient, allowed to mix for ten minutes, and a second sample of blood taken for estimation of the dilution which has occurred. The general principles involved, the method of separation and preparation of the red cells for reinjection and radioactive assay and calculation will be described. Evidence for binding of radioactive phosphorus by the red cell and data on the accuracy of volumetric technics as well as on the reproducibility of the radioactive measurements will also be given. Applications of the method to surgical and medical cases involving various dietary procedures, transfusion, etc. will be presented.

MOTION PICTURES

Two motion picture theaters, located in rooms adjacent to the exhibits, will be in continuous operation. Each film will be shown once daily, Monday morning to Friday noon, on a definite schedule.

GEORGE E. SHAMBAUGH JR., Northwestern University Medical School, Chicago:

The Fenestration Operation for Otosclerosis: The film consists of animation in part, depicting the steps of the fenestration operation, followed by an actual picture of the operation itself on a patient, beginning with the hearing test before operation and ending with her audiogram three weeks after operation. In addition to the technic of the operation, the indications for it are briefly taken up. Silent, forty-three minutes.

PAUL H. HOLINGER, University of Illinois College of Medicine, Chicago:

Organic Disorders of the Larynx: The film shows the various disorders of the larynx which affect speech. It stresses the relation of organic pathologic changes to vocal function and shows various types of benign and malignant tumors, paralyses and inflammatory processes of the larynx as they appear on the laryngeal mirror or through the direct laryngoscope. Silent, twenty-five minutes.

ROGER W. BARNES and IVAN E. MARTIN, College of Medical Evangelists, Los Angeles:

Repair of Vesicovaginal Fistula: Motion picture shows the technic of repair of vesicovaginal fistulas. The inverted Trendelenberg position is used and a thick layer of tissue is built up between the bladder and the vagina. Silent, color, twelve minutes.

M. H. KNISELY, W. K. STRATMAN-THOMAS, T. S. ELIOT and E. H. BLOCK, University of Chicago, Chicago, and University of Tennessee, Memphis, Tenn.:

Knowlesi Malaria: This is the first motion picture taken through a microscope showing the pathologic circulatory physiology in a living animal through the whole course of a mammalian disease. The film shows that normal circulating blood is not agglutinated and shows the course of events after the development of the killing sludge. The effect of one drug in breaking up the masses of which the sludge is composed is presented. Silent, forty minutes.

WILLIAM BICKERS, Richmond, Va:

Primary Dysmenorrhea: The motion picture shows a study of the endometrial pattern, basal temperature curve, myometrial contraction patterns, and intrauterine pressures in patients with dysmenorrhea. The intrauterine balloon technic for recording uterine contractions is presented. Treatment is discussed. Silent, forty-nine minutes.

MYRON PRINZMETAL, H. C. BERGMAN, ELIOT CORDAY, H. E. KRUGER, LOIS SCHWARTZ, ETHEL FOLADARE, R. J. SPRITZLER and S. A. SANFORD, Cedars of Lebanon Hospital, Los Angeles:

Studies in Coronary Circulation: Selected studies in coronary artery disease are presented in slow-motion color pictures, some taken at 1,000 frames per second (up to 65 times normal speed). By the intravenous injection of fluorescein, (made photographically visible under near-ultraviolet light), the coronary circulation is visualized. Shock is revealed as an aggravating force in causing myocardial damage when associated with coronary insufficiency or coronary occlusion. Coronary arteries are proved not to be end arteries physiologically. Other included studies show the effects of asphyxia; the amazing myocardial reserve (15 per cent of contracting myocardium is sufficient to maintain normal hemodynamics), and a vivid first photographic demonstration of coronary artery spasm. Silent, thirty minutes.

LOUIS E. MOON and J. B. CHRISTENSEN, Creighton University School of Medicine, Omaha, Neb.:

An Improved Technic for the Operative Treatment of Anorectal Lesions: Simple, practical and successful methods of making proctologic examination are presented and operative procedures for the treatment of common anorectal lesions demonstrated. A routine proctologic examination is shown, with animated, anatomic illustrations reviewing the anatomy of the region followed by close-up shots of the examination in actual cases. A simple ligature type of operation for removal of internal and external hemorrhoids is shown, as well as operations for anal fissure, abscess and a simple fistula. Silent, forty-four minutes.

WALTMAN WALTERS, Mayo Clinic, Rochester, Minn.:

Transabdominal Resection of the Gastric Nerves (Vagi) in the Treatment of Peptic Ulceration: The technic of transabdominal vagotomy is shown in a case of gastrojejunal ulcer. The film shows a few steps of the removal of the gastroenterostomy and the gastrojejunal ulcer so as to orient the audience. The major part of the film consists of the exposure of the lower part of the esophagus, demonstration of the vagus nerves and their section. Silent, seventeen minutes.

MALCOLM R. HILL and ROBERT L. BELT, College of Medical Evangelists, Los Angeles:

Two Team Abdominoperineal Resection: The picture shows operating room setup, with technical approach for two team abdominoperineal resection for carcinoma of rectum. Silent, nine minutes.

PHILIP THOREK, Chicago:

Surgical Treatment for Carcinoma of the Lower End of the Esophagus: This case presents the extension of a carcinoma of the cardiac end of the stomach into the esophagus. A transthoracic partial esophagogastrectomy was performed with an end to side esophagogastrostomy. Roentgenograms and the patient's postoperative course amplify the film. Silent, forty-six minutes.

ARNOLD S. JACKSON, Jackson Clinic, Madison, Wis.:

Electrosurgical Thyroidectomy for Hyperthyroidism: This picture illustrates some of the important tests used in the diagnosis of hyperthyroidism. It shows the preoperative steps used for thyroidectomy, the technic of operation, with both the scalpel and the electrosurgical knife, and the postoperative care. Silent, thirty minutes.

HERBERT CONWAY, New York Hospital and Cornell University Medical College, New York:

Tattooing of Skin Grafts and Port Wine Stains: This film shows the technic of tattooing as a form of medical therapy for the coloration of skin grafts on the face, and the permanent camouflage of port wine stains (capillary hemangiomas) by pigment injections. The technic of administration and appearance of patients before and after the treatment is demonstrated. Silent, twelve minutes.

H. R. REICHMAN and SCOTT SMITH, Salt Lake City:

Sigmoidotomy for Removal of Pedunculated Adenoma: The film shows the importance of adenomas of the colon. When roentgen studies of the colon are negative diagnosis is made by the proctoscope. Spinal anesthetic with supplement is used in a 9 year old boy. Silent, seventeen minutes.

LEES M. SCHADEL JR., Hahnemann Medical College and Hospital, Philadelphia:

Meperidine and Pudendal Block: Obstetric analgesia is obtained with meperidine and scopolamine in a primigravida. For anesthesia a new technic of perineal block is illustrated by a review of the nerve supply to the perineum and the landmarks referable to this block technic and also by a close-up showing the technic to be followed and a demonstration of its effect in producing complete perineal anesthesia. The episiotomy and delivery show spontaneous breathing of an infant without any signs of depression. Inspection of the cervix and repair are shown, and the area is retested for complete anesthesia. Silent, fifteen minutes.

WILLIS J. POTTS, SIDNEY SMITH and WILLIAM O. McQUISTON, Children's Memorial Hospital, Chicago:

Aortic Pulmonary Anastomosis for Congenital Pulmonary Stenosis: The surgical treatment of pulmonary stenosis is presented, and the technic of aortic pulmonary anastomosis, or the Potts-Smith operation, is shown in detail. By use of animation the exact technic of suture of the aorta to a pulmonary artery is shown. Silent, thirty-six minutes.

GEORGE L. WESSELS and ROBERT L. PATTERSON, Allegheny General Hospital, Pittsburgh:

Modern Trends in Intravenous Therapy: The film presents a simplified technic for administering large volume intravenous fluids with both conventional and disposable equipment. Technics for blood transfusion, blood banking and preparation of plasma are also shown. Silent, thirty-seven minutes.

R. P. WALTON and O. J. BRODIE, Medical College of South Carolina, Charleston, S. C.:

Effect of Drugs on the Heart in Situ: The mammalian heart, exposed in an open chest preparation with mechanical respiration, is shown during the response to administration of typical cardiovascular drugs. Simultaneous recordings with blood pressure manometer and electrocardiographic tracings are shown synchronously in slow motion. The effects of autonomic drugs, of anoxia and of various degrees of digitalis intoxication are shown. Protection of the ventricle against electrically induced auricular fibrillation and increased myocardial contractile force as produced by digitalis are demonstrated. Silent, twenty-eight minutes.

CARROLL L. BIRCH and LOUIS R. LIMARZI, University of Illinois College of Medicine, Chicago:

Animated Hematology--Bone Marrow: The picture shows general considerations of normal bone marrow, its embryology and development, technic of bone marrow study and pathology of bone marrow (anemias, leukemias, Gaucher's disease, multiple myeloma, leishmaniasis, malaria, etc.). Bone marrow is shown by "kodachrome" photomicrographs. Silent, fifty minutes.

FRANKLIN F. SNYDER, Boston Lying-In Hospital Boston:

Breathing Before Birth and Its Obstetric Significance: The picture demonstrates that babies breathe before birth as shown by the rhythmic movements transmitted through the abdominal wall of the mother. They breathe the amniotic fluid in which they are immersed, thus preparing the lungs for the first gasp of air following delivery. Intrauterine pneumonia results from breathing contaminated amniotic fluid, such as follows premature rupture of the membranes. The introduction of carbon particles into the amniotic fluid in a rabbit is shown and the black lungs of the fetus a few minutes later are striking. The placental circulation is shown, and it is evident that fetal activity is not due to asphyxia, but is associated with highly oxygenated (bright red) blood. Analgesic drugs given to the mother can be compared with respect to the amount and duration of their depressant effects on the fetus independent of the complications of labor. Silent, forty minutes.

H. L. SMITH, H. E. ESSEX and E. J. BALDES, Mayo Clinic, Rochester, Minn.:

A Study of the Movement of Heart Valves of Various Laboratory Animals: The hearts of various laboratory animals were perfused and kept beating for various lengths of time. Openings were made in the different chambers of the hearts, and motion pictures were made of the exact movements of the mitral, tricuspid, aortic and pulmonic valves. Silent, twenty-three minutes.

FREDERICK F. TISDALL, University of Toronto and Hospital for Sick Children, Toronto, Canada:

Ascorbic Acid and Scurvy: This motion picture is a clinical lecture on ascorbic acid and its use in the prevention and treatment of scurvy. There are some references to the part that ascorbic acid plays in the general metabolism of the body and in other clinical conditions encountered. Sound, twenty-five minutes.

SOMERS H. STURGIS and JOHN ROCK, Massachusetts General Hospital and Free Hospital for Women, Boston, and Brookline, Mass:

The Physiology of Normal Menstruation: The picture shows by diagrammatic animation the production of pituitary and ovarian hormones, the response of the ovaries to pituitary stimulation and the response of the endometrium to ovarian stimulation. The coordinated activity of pituitary, ovaries and endometrium is summarized. Use of photomicrographs of the endometrium in various phases demonstrates actual histologic changes. Sound, twenty-two minutes.

A. E. GOLDSTEIN, Sinai Hospital and University of Maryland, Baltimore:

Surgery for Polycystic Renal Disease: This surgical procedure was suggested by the author twelve years ago. Each kidney is exposed separately. All available cysts are opened and drained. The kidney is then split in half lengthwise, down to the calyces and each half is sutured to the skin for future puncturing. While this is not a cure; symptoms have been relieved and life has been prolonged in many cases. Silent, fourteen minutes.

D. C. HINES, Lilly Laboratory for Clinical Research, Indianapolis, Ind., and A. C. Corcoran and I. H. PAGE, Cleveland Clinic, Cleveland:

Kidney Function in Health: The film begins with a brief characterization of the role of the kidneys and the general principles of their function. It then follows the course of the blood to a glomerulus and describes the factors governing filtration and the various renal function tests concerned with filtration. The filtrate is then followed step by step through the renal tubule, the actions of the various sections being illustrated as they are reached. Sound, thirty-eight and one-half minutes.

SPECIAL EXHIBIT COMMITTEE ON PHYSICAL MEDICINE: The following motion pictures are presented in conjunction with the Special Exhibit on Physical Medicine:

Toward Independence. United States Army film. Sound, thirty minutes.

Physical Medicine Service. United States Army film. Fifteen minutes.

Return to Action. United States Army film. Nineteen minutes.

Dynamic Physical Reconditioning. United States Army film. Thirteen minutes.

First Steps. United Nations Film. Ten minutes.

UNITED STATES ARMY, Medical Department, Washington, D. C.:

Aneurysms, Part I - Quadruple Ligation and Excision of Arteriovenous Fistula of the Femoral Vessels, Lower Third: The motion picture presents the preoperative findings, surgical procedure, and postoperative picture of an interesting and important vascular injury, which in this case resulted from a shell fragment wound. It covers the subject in detail and emphasizes the precautions that must be taken during surgery. Sound, ten minutes.

Arteriovenous Fistula with False Sac of Lower Femoral Vessels (Quadruple Ligation and Excision): Essential phases of a preoperative examination for this type of injury are portrayed and the details of surgery, to include fistula and false sac removal, are clearly shown and described. Sound, fifteen minutes.

Management of Abdominal Colostomies (Intraperitoneal Closures): Pertinent factors associated with the management of transverse, left side, and sigmoid colostomies, including intraperitoneal closure technics are shown. As presented, a comparison of the problems confronting the operator can be seen readily. Sound, twenty-four minutes.

Management and Technic of Pulmonary Lobectomy: A complete presentation of the subject, including preoperative program, surgical procedure, bronchoscopic and radiographic phases, postoperative program, and measures taken to effect an active convalescence. Sound, twenty-seven minutes.

The TECHNICAL Exposition

The popularity and importance of the Technical Exposition to the medical profession will again be demonstrated not only by the increased number of exhibitors but in the quality of the exhibits themselves. It will be a fitting testimonial to the faith and vision of the manufacturers and the profession which they serve.

In 600 units of space, stretched over the vast expanse of the upper deck of the Navy Pier, jutting out into Lake Michigan, six long rows of fine displays will show the technical skill and manufacturing genius brought to the 1948 Session. The arrangement is such that any one exhibit may be readily located.

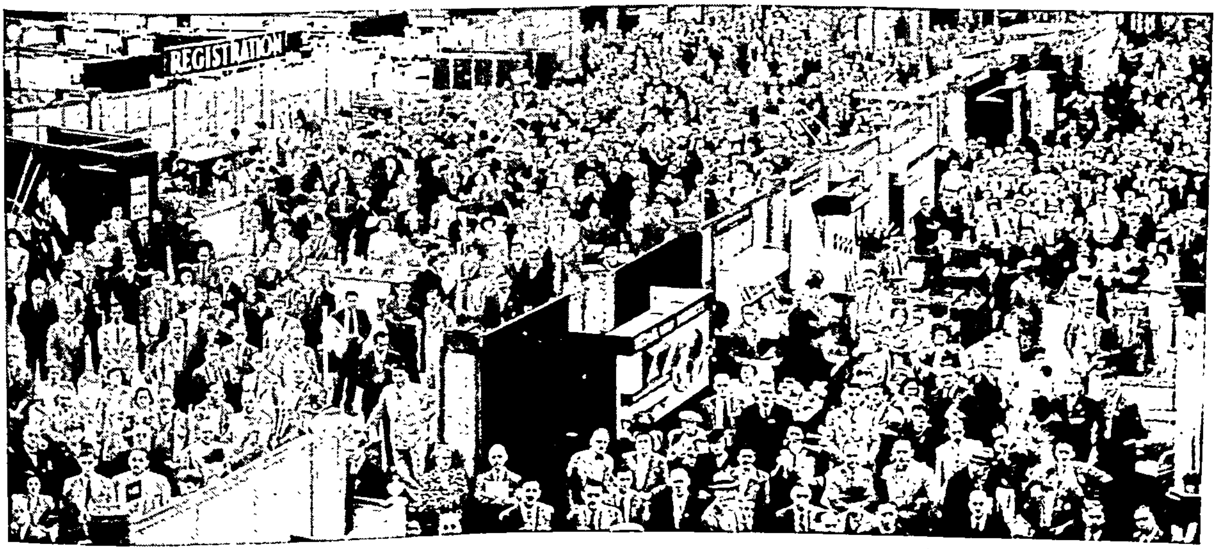
In attractive, brief form, the exhibits will reveal the physicians' modern armamentarium for his combat with disease. Here the physician can leaf through or examine leisurely almost the entire line of foremost and latest medical books. He can pick up and admire fine precision instruments; see demonstrations of highly specialized apparatus; gain first-hand information concerning the newer discoveries in antihistaminic, antibiotic, amino acid, and hormonal therapy; learn latest facts about the newer methods of diagnosing cancer, the therapeutic effects of foods and their relation to health. The same applies to special apparel, infant items, hypo-allergenic cosmetics, specialized services, and other time-honored standbys that fill an important place in the physician's scheme of things. If the venerable " horse and buggy " doctor of long ago could visit the 1948 Annual Technical Exposition, no doubt he would remark: " What a rich legacy of new and better methods the present-day physician is heir to! What a long way we have come "!

The exhibits will be open daily from 8:30 A.M. to 6:00 P.M. each day beginning Monday, June, 21 and closing noon, Friday, June 25. These hours together with the close proximity to the scientific exhibits will make it unusually convenient to add to your well of knowledge and expand your resevoir of information...for indeed, the Technical Exposition will be a most stimulative and educational feature; and, capable, highly trained attendents will be on hand to bring these exhibits to life and make them a dramatic summary of results achieved by the cooperation of medical industry with medical science.

Following are brief descriptions of some of the exhibits to aid you in knowing in advance which displays most intimately relate to your problems. You are cordially urged to spend as much time as possible visiting the Technical Exhibition.

Thos. R. Gardiner,

Business Manager and Director of Technical Exhibits



LIST OF TECHNICAL EXHIBITORS WITH DESCRIPTIVE ITEMS RECEIVED UP TO PRESS TIME

ABBOTT LABORATORIES

Booths A-74, A-76, B-75, B-77

"The Sneezing Man," an ingenious mechanism dramatizing the trials of an allergy victim, will highlight an unusual exhibit by Abbott Laboratories on an antihistaminic drug. Other Abbott products to be featured are Pentothal Sodium, a brief-acting barbiturate for intravenous use; and Tridione, a drug for the control of the petit mal triad and other convulsive seizures.

AHLSTROM SURGICAL COMPANY

Booth C-134

The Ahlstrom Surgical Company—a new exhibitor—will feature a selected line of fine surgical instruments, hospital supplies and physicians' supplies. The display will include various instruments for E.E.N.T., Neurological, Plastic, and General Surgery.

W.D. ALLISON COMPANY

Booth A-84

A new and wonderful surprise awaits you at the Allison exhibit this year. You won't want to miss it!

ALMAY, INC.

Booth C-79

An attractive display of hypo-allergenic cosmetics may be inspected in the Almay exhibit. A feature of this exhibit will be Almay Hypo-Allergenic Nail Polish. Specific information and descriptive literature on these scientifically formulated cosmetics will be made available to all physicians by members of the Almay staff.

A. S. ALOE COMPANY

Booths C-173, C-175

AMERICAN CAN COMPANY

Booth B-129

AMERICAN CYSTOSCOPE MAKERS, INC.

Booth B- 115

Among the attractions at the American Cystoscope Makers, Inc. booth, will be new telescopic bronchoscopes, gastroscopes, and other telescopic diagnostic instruments; catheters; and electrosurgical equipment.

AMERICAN HOSPITAL SUPPLY CORPORATION

Booths A-8, A-10

The American Hospital Supply Corporation will exhibit a full range of Baxter Parenteral Products—Intravenous Solutions, including the Blood Transfusion and plasma equipment plus disposable accessories for the administration there of; Blood grouping Serums that excel in accuracy, speed and dependability; and certain selected Tomac products that simplify, if not solve many hospital problems.

AMERICAN OPTICAL COMPANY

Booths A-142, A-144, A-146, A-148

AMERICAN PHYSICIANS ART ASSOCIATION

Adjacent to Scientific Exhibits

Here you will see an unprecedented ART SHOW of outstanding works by members of the American Physicians Art Association--and don't forget to vote for your idea of the best art object at this Exhibition. The winning doctor will be awarded the truly handsome permanent "Popularity Trophy" --on display at the Art Show.

AMERICAN SEAL-KAP CORPORATION

Booth B-96

AMERICAN STERILIZER COMPANY

Booths B-157, B-159

AMES COMPANY, INC.

Booths B-34, B-36

Decholin, the standard hydrocholeretic agent for the treatment of biliary tract diseases, will occupy a prominent place in the Ames exhibit. Another interesting feature will be a demonstration of Clinitest and Hematest—simplified tests for the detection of urine-sugar and occult blood.

ANSCO

Booth A-164

Outstanding radiographs made with both screen and non-screen techniques will be exhibited here. An unusual and interesting display of Ansco Color transparencies will show the natural and true color recording of the original subject. Don't fail to test your "color sense" (visibility and appreciation of color) with a series of special Ansco Color transparencies.

APPLETON-CENTURY-CROFTS, INC.

Booth C-36

Of particular interest in the Appleton-Century-Crofts exhibit are the new 9th (1948) Edition of Zinsser & Bayne-Jones, TEXTBOOK OF BACTERIOLOGY under new authorship; the new 2nd (1948) Edition of Maingot, ABDOMINAL OPERATIONS; W. Wallace Morrison's DISEASES OF THE EAR, NOSE AND THROAT; the new 5th (1948) Edition of Cole & Elman's GENERAL SURGERY; and advance information on many other important titles and revisions which are in preparation.

ARMOUR AND COMPANY

Booth B-31

For their initial exhibit at a general session, Armour Toiletries, a division of Armour and Company, is presenting Stork Baby Products. These products consist of the famous Stork Castile Soap, for 40 years a leader in baby's complexion care, and the scientifically prepared Stork Baby Oil and Stork Baby Powder. All three of these products are accepted for advertising in A.M.A. publications.

THE ARMOUR LABORATORIES

Booths A-168, A-170, A-172

The Armour Laboratories, *a pioneer in the* field of Endocrinology, will welcome members of the American Medical Association at the Armour exhibit in booths A-168, A-170, A-172. If you have not received copies of Armour booklets on THE THYROID GLAND, FUNCTION AND MALFUNCTION OF THE BILIARY SYSTEM, and ARMOUR ATLAS OF HEMATOLOGY, you may secure them at the Armour booths.

THE GORDON ARMSTRONG COMPANY, INC.

Booth B-32

The Armstrong X-4 Baby Incubator -- tested and approved by Underwriters' Laboratories for use with oxygen - may be seen here. It supplies heat, humidity, and oxygen for the physician to use in the treatment of premature or any sick or debilitated baby. An emergency service has been established for rush shipments by Air Express to all parts of the world.

AYERST, MC KENNA & HARRISON, LIMITED

Booths C-57, C-59

The potency of "Premarin," its convenience *of administration and flexibility of dosage, will* be summarized in the Ayerst, McKenna & Harrison booth. "Premarin (Estrogenic Substances—water-soluble) is a highly effective and well tolerated preparation of naturally occurring, orally-active, conjugated estrogens (equine). The potency of "Premarin" is expressed in terms of its principal estrogen, sodium estrone sulfate.

C. R. BARD, INC.

Booth B-27

BARNETT OPTICAL LABORATORIES

Booth C-46

BARRY LABORATORIES, INC.

Booth A-111

BAUER & BLACK

Booths C-85, C-87

W. A. BAUM CO. INC.

Booths C-101, C-103

All models of the Lifetime Baumanometer will be displayed and demonstrated for the doctors in attendance. Those who maintain a central examining place will be especially interested in investigating the WALL Model Baumanometer. In addition, a full line of accessories - including special infant and child size bloodpressure cuffs will be available at the Baum exhibit.

BAUSCH & LOMB OPTICAL CO.

Booths A-40, A-42

A number of important new scientific instruments for research, diagnosis and refraction will be on display at the Bausch & Lomb *exhibit. Included* will be the "L" Camera, for photomicrography; the "E" research microscope with low position, find adjustments; Flourescence accessories for quick, positive T.B. diagnosis; Phase contrast accessories for examining unstained specimens; and the Allen Gonioscope Prisim for exploration of the anterior chamber angle of the eye.

BAYBANK PHARMACEUTICALS, INC.

Booth A-70

BECK-LEE CORPORATION

Booth B-80

BECTON, DICKINSON & COMPANY

Booths C-141, C-143

BEECH-NUT PACKING COMPANY

Booth A-173

Nutritionists in attendance at the Beech-Nut exhibits will be glad to answer any questions regarding the thirty-seven varieties of Beech-Nut strained and junior foods. They will also be happy to describe their Nutrition Program and will have on hand the charts which they use to teach mothers in various "well-baby" clinics.

BELTONE HEARING AID COMPANY

Booth C-178

In addition to a demonstration of special fitting procedure, showing how Beltone Hearing Aids can be "automatically" fitted to all types and degrees of hearing loss by the use of the Selectometer, the Beltone display will show the new Symphonette model, with the "dime size" M-2 receiver, which delivers 2 to 6 times more sound intensity than previous models.

CHARLES BESELER COMPANY

Booth C-62

THE BEST FOODS, INC.

Booths B-100, B-102

A visit to the Best Foods exhibit will clearly show you the nutritional value of Nucoa, the wholesome nutritious vegetable margarine, which contains 15,000 units of Vitamin A to the pound. Also of interest will be the famous Best Foods Hellmann's Real Mayonnaise and the other Best Foods Products. Miss Elsie Stark, Director of Consumer Education, who will be in charge of the booth, will welcome questions about the products.

THE BILHUBER-KNOLL CORP.

Booths B-145, B-147

The Bilhuber-Knoll Corporation will present Dilaudid, Metrazol, Theocalcin, and other "Council-Accepted" medicinal chemicals that have established their place in the physician's individualized prescriptions. Your visit to booths B-145 and B-147 and your discussions of these prescription chemicals will be welcomed.

J. BISHOP & CO. PLATINUM WORKS

Booths A-51, A-53

The Bishop exhibit will feature Bishop Blue Label hypodermic needles, the Albalon needle, the first hypodermic needle with a plastic hub, and other newly developed specialized needles for special work. The latest improvements in hypodermic medication methods will also be presented by a specially trained group of representatives.

THE BLAKISTON COMPANY

Booth C-20

The Blakiston Company will have an attractive exhibit of new and standard books. In addition, there will be advance information on forthcoming titles of importance to the profession. A number of new titles have been added to the Blakiston Recent Advances Series. Ask to see: Ricci DIAGNOSIS IN GYNAECOLOGY; Smith and Gault ESSENTIALS OF PATHOLOGY; Stitt, Clough and Branham PRACTICAL BACTERIOLOGY, 10th Edition; Lillie *HISTOPATHOLOGIC* TECHNIC; Epstein STRABISMUS; Fishbein MEDICAL WRITING.

THE BOOK SHOP BINDERY

Booth C-22

The atmosphere of a pleasant, attractively arranged reception room will greet visitors to the Book Shop Bindery exhibit. Among the authentic appointments *of this inviting* room will be several shelves of standard medical journals in the distinctive gold-stamped binding designed by the *Book Shop Bindery and authorized* by the publishers. Visitng physicians are invited to inspect the volumes *and to make* any inquiries they wish about the materials and workmanship, the convenience, practicality, economy and background value of adopting authorized book bindings for their own reception rooms.

BORCHERDT MALT EXTRACT COMPANY

Booth B-169

THE BORDEN COMPANY

Booths C-31, C-33, C-35, C-37

THE GEORGE W. BORG CORP. (GIBBS DIVISION)

Booths B-144, B-146, B-148, B-150

A feature of the George W. Borg Corporation's exhibit on x-ray equipment will be the Deep Therapy Machine utilizing high frequency which makes it *possible to have a very small* transformer. Another BORG feature will be a hand-rock table that has a true *Trendelenberg* at all the degrees of angulation instead of the customary three positions. It is controlled by a push button on the rocking handle, which operates a solonoid on the gear segment.

BRACKE-SEIB X-RAY CO., INC.

Booths A-169, A-171

PAUL E. BRANDWEN

Booth C-108

JOHN H. BRECK, INC.

Booth A-83

Breck industrial preparations on display here will include Breck Hand Cleaner, a bland, mild, nonirritating cleaner; Breck pH7 Protective Cream, of great value in many industrial plants where employees come in contact with irritants; Breck Water Resistant Cream, which forms a protective film of material, resistant to the action of water and water soluble substances; and Breck Work Cream, a protective cream to help prevent defatting of the hands.

GEORGE A. BREON & COMPANY

Booth A-94

Rest, a cordial welcome, and, if you're in the mood, conversation—even pertinent information—await the eager but not inexaustible conventioneer in the Breon "garden." There a lighted fountain bubbles from a vine-covered wall. Soft cushioned seats will take the weight off your feet while you renew your wind and your acquaintance with Breon representatives.

BREWER & CO., INC.

Booth C-136

BRISTOL LABORATORIES, INC.

Booths A-9, A-11

The BRISTOL LABORATORIES' exhibit will be devoted to the display of penicillin and pharmaceutical products. Qualified representatives will be on hand to assist the medical profession with any inquiries. Literature describing Bristol products will be available.

BRUSH DEVELOPMENT COMPANY

Booth C-92

THE BURDICK CORPORATION

Booths A-58, A-60

The Burdick Corporation will display their new F.C.C. approved Diathermy Unit, Model X-85, a special feature of which is the Contour Applicator; modern Infra-Red and Ultraviolet Lamps; Low Voltage apparatus; and the Rhythmic Constrictor. Visiting doctors and nurses are invited to register for a free copy of the "Syllubus," a compilation of information on the use of Physical Medicine Equipment.

BURNS CUBOID COMPANY

Booths C-145, C-147

Burns Cuboid Company will bring to the Convention a specially constructed, colorful Masonite display redesigned to show more graphically the various raises of these featherlite, metal free adapters. A companion piece will show many of the 176 size variations which permit more accurate fitting. Reprints of HYGEIA ads which tell the complete story of Cuboids will also be displayed.

BURROUGHS WELLCOME & CO. (U.S.A.) INC.

Booths A-2, A-4

Large THREE-DIMENSIONAL color photography will be used here to illustrate the important features of 'Wellcome' GLOBIN INSULIN and 'DEXIN'. Be sure to stop by to see this unusual development.

BURTON MANUFACTURING COMPANY

Booth B-79

CAMBRIDGE INSTRUMENT CO., INC.

Booth A-72

CAMEL CIGARETTES
(MEDICAL RELATIONS DIVISION)

Booths B-74, C-75

CAMERON SURGICAL SPECIALTY COMPANY

Booths C-115, C-117

Among the items to be demonstrated at the Cameron exhibit are Cauterodynes and Cauteradios for Electro-surgery, Electro-cauterization and Electro-coagulation; Coagulair-Sigmoidoscope; Electro-Diagnostic Lamps and Instrument Sets; Radiolucent Cannula; the new Flexible Gastroscopes with treated and coated lenses; Flexible Esophagoscopes, Bronchoscopes; Esophagoscopes; Laryngoscopes; Mirror, Headlites; Binocular Spectacle Loupe; Magniscope and other Specialties.

S. H. CAMP & COMPANY

Booths C-68, C-70

A series of illuminated transparencies depicting anatomical conditions before and after application of Camp Anatomical Supports will be displayed. Experts in attendance will answer questions pertaining to the scientific application of Anatomical Supports and advise regarding the availability of them in Authorized Service Departments throughout the country.

CANADIAN RADIUM AND URANIUM CORP.

Booth A-117

CARNATION COMPANY

Booths C-89, C-91

Here you will see an attractive display on Carnation Evaporated Milk - "the milk every doctor knows." Valuable information on the use of this milk for infant feeding, child feeding, and general diet, will be presented; and the method by which Carnation is generously fortified with pure crystalline Vitamin D - 400 U.S.P. units per reconstituted quart - will be explained. Interesting literature will also be available for distribution.

WILMOT CASTLE COMPANY

Booths A-30, A-32, A-34

Your inspection of the latest in Sterilizing and Lighting Equipment will be welcomed at the Castle booth. A valuable booklet entitled, HOW TO BUY A STERILIZER, will be available for the doctor or his nurse.

CENTRAL PHARMACAL COMPANY

Booth A-17

THE CENTRAL SCIENTIFIC COMPANY

Booth B-90

The item of main interest in the Central Scientific display will be the powerful Waring Blendor in actual operation—for rapid disintegration, pulping, and mixing of foodstuffs, for studies in nutrition, vitamin assay, etc, or for the preparation of vaccines, enzymes, bacteria, and viruses. Included in the display will be electronic titration-pH meters, photoelectric filter photometers, and other new instruments for research and clinical laboratory procedures.

CEREAL INSTITUTE, INC.

Booth A-16

"What Are You Doing About Breakfast?" will be the theme of the materials to be presented at the Cereal Institute exhibit. These materials have proven to be serviceable to professional leaders and teachers who are concerned with teaching the importance of an adequate breakfast in the daily diet. Complimentary copies of CEREALS AND THEIR NUTRITIONAL CONTRIBUTION, and THE CEREAL AND MILK STORY will be available.

THE CHICAGO DIETETIC SUPPLY HOUSE, INC.

Booth A-67

CHURCH & DWIGHT CO., INC.

Booth B-25

Interest in the Church & Dwight exhibit this year will center on its well-known Bicarbonate of Soda, Arm & Hammer and Cow Brands. These brands of U.S.P. quality are used extensively in Medical Practice, but this year emphasis will be placed on their value as a powder for cleaning the teeth. The Council on Dental Therapeutics has accepted the products as dentifrices. Booklets designed to stimulate child interest in Oral Hygiene will be distributed.

CIBA PHARMACEUTICAL PRODUCTS, INC.

Booths B-165, B-167

For complete information on latest developments in the use of PYRIBENZAMINE, the antihistaminic for relieving symptoms of allergy, visit the Ciba booth. Also featured will be PRIVINE Hydrochloride, the effective long lasting nasal vasoconstrictor. Representatives in attendance will gladly answer any questions you may have concerning these products and to furnish you with literature and samples.

THE CILKLOID COMPANY

Booth C-88

Visitors to this booth can examine the Perforated Form of Cilkloid and obtain information concerning its use as a Non-Adherent Direct Dressing for skin grafts, burns, ulcers, plastic surgery, etc. Industrial surgeons will also be interested in knowing about the Impervious Form of the Cilkloid for protective and occlusive dressings. Both forms will be of especial interest to hospital personnel.

CLAY-ADAMS COMPANY, INC.

Booth C-56

Clay-Adams exhibit will feature equipment for the new cytological technics, blood testing equipment, and new developments in laboratory and diagnostic equipment. There will be a display of visual aids for teaching and study including Medichromes, anatomical charts, obstetrical manikins, and osteological preparations.

CLERSITE CO.

Booth C-82

COCA COLA COMPANY

Booth A-132

"Pause...and refresh" will be the feature of hospitality centering in the Coca Cola lounge. This invitation means a pure, thirst-quenching, wholesome drink and is extended to all visitors.

WARREN E. COLLINS, INC.

Booth A-13

At Warren E. Collins exhibit will be seen a fine display of scientific respiration apparatus. These include the Drinker-Collins Duplex Respirator; the Benedict-Roth Metabolism Apparatus for routine metabolism work and lung function studies; the Collins Open-Top Oxygen Tent; and the Drinker-Collins Infant Respirator. Skilled factory technicians will be in attendance to welcome you.

COLWELL PUBLISHING COMPANY

Booth B-17

Of special interest to all physicians will be a new line of letter-size DAILY LOG history sheets, designed for general practice and most specialties. The DAILY LOG for Physicians and the regular line of card size ledgers and histories may be examined. Efficient indexing and filing of medical records will be demonstrated and questions about medical record procedures will be welcomed.

C. S. C. PHARMACEUTICALS

Booth C-139

The display of C.S.C. Pharmaceuticals will feature a large portrait of Sir Alexander Fleming, one of the pioneers in the development of penicillin. In 1929 Fleming observed that the mold, Penicillum notatum, elaborated a substance which inhibited the growth of bacteria. From this chance laboratory observation has come one of the most powerful therapeutic agents ever placed in the hands of physicians, a tribute to the scientific alertness of Fleming. The C.S.C. display will also feature full color reproductions of disease processes amenable to penicillin - C.S.C. preparations.

CONFORMAL FOOTWEAR COMPANY

Booth C-40

CONTINENTAL X-RAY CORPORATION

Booths A-18, A20

The Continental X-ray Corporation plans to feature two new developments along with their standard line of popular equipment at the Medical Convention this year. One new development is the electronic stylus orthodiagraphic attachment for fluoroscopes; the other is a 250 milliampere push button selection power unit, designed for simplicity of operation.

THE COOPERATIVE MEDICAL ADVERTISING BUREAU

Booth A-48

CORECO RESEARCH CORP.

Booth A-163

CORN PRODUCTS SALES CO.

Booths C-63, C-65

COUNCIL ON WHITE MINERAL OIL

Booth B-30

The Council on Mineral Oil will distribute an informative booklet, "What Physicians Say About Mineral Oil" and sample bottles of mineral oil at its booth. On exhibit will be photostats of Council advertisements in the Journal of the American Medical Association.

CURVLITE PRODUCTS, INC.

Booth B-122

CUTTER LABORATORIES

Booths C-163, C-165, C-167

On display in this exhibit will be the Cutter line of Intravenous Solutions in Safti-flasks with the latest expendable equipment for administration. The recent advances and additions to the blood fractions group of products will also be on display; for your inspection.

DAVIES, ROSE AND COMPANY, LTD.

Booth C-67

The current Quinidine Sulfate situation, which has been a very perplexing problem during the past few years, will be explained by representatives in the Davies, Rose exhibit. Their Tablets of Quinidine Sulfate, alkaloidally standardized, which assures uniformity in dosage, will be featured.

F. A. DAVIS COMPANY

Booth B-112

Many of the newest and most talked about books will be on display at the F.A. Davis booth. Among them: ARTHRITIS, Bach; GALLBLADDER DISEASES, Behrend; HANDBOOK OF TREATMENT, Gruber; PERIPHERAL VASCULAR DISEASES, Kramer; PEDIATRIC PROGRESS, Litchfield-Dembo; MEDICAL DIAGNOSIS, Loewenberg; CLINICAL UROLOGY, McCrea; RHINOPLASTY, Maliniac; GONIOSCOPY, Troncoso; REPARATIVE SURGERY, May; RADIOLOGY, Pillmore; TREATMENT IN GENERAL MEDICINE, Reimann; DIAGNOSTIC SIGNS, Robertson; PRE-OPERATIVE AND POSTOPERATIVE CARE, Tourish and Wagner.

DAVIS & GECK, INC.

Booth A-35

Davis & Geck, Inc., manufacturers of sterile surgical sutures, will present an armamentaria of suture-needle combinations specifically prepared for every type of surgery. Literature and technical information on sutures and wound healing will be available. This will include the D&G Manual, reprints and monographs as well as leaflets dealing with the development and improvement of D & G sutures.

DAVOL RUBBER COMPANY

Booths C-104, C-106

To this year's annual meeting of the A.M.A , the Davol Rubber Company will bring its newest medical specialties· First-Aid Tourniquet which clips instantly and holds fast, Urinal Bottle Cap and Connecting Drain Tube, two new types of T Tubes for biliary drainage, "Paris" water bottle with its air-cushioned surface --- and "Anti-Colic" brand Nurser with the "Anti-Colic" brand Nipple with an all-'round tab.

MRS. DAY'S IDEAL BABY SHOE COMPANY

Booth C-25

A vitit to MRS DAY'S IDEAL BABY SHOE exhibit will reveal a complete line of baby shoes in choice materials. IDEALS take care of the baby through the four stages - crib, soft soles, intermediate soles and hard soles. Doctors are cordially invited to call at booth number C-25.

DENOYER-GEPPERT COMPANY

Booth A-101

Denoyer-Geppert Company, Educational Publishers, will display two life size anatomical oil paintings from a series of ten now in preparation, and two reproductions of these originals, just completed. Also on display will be a selection of the world famous anatomical models by Dr. Auzoux, France; prepared human skulls and bone preparations, and some of their own anatomical models and corrosion specimens.

THE DENVER CHEMICAL MFG. CO., INC.

Booth B-78

Exhibited here will be the Galatest for the instantenous determination of urine sugar, and Acetone Test (Denco) for the detection of acetone in urine will be exhibited. You will be especially interested in a demonstration of these "spot tests" for sugar and acetone. Galatest and Acetone Test (Denco) offer advantages of accuracy, simplicity and economy in routine urinalysis.

DEPUY MANUFACTURING COMPANY

Booth B-158

DEVEREUX SCHOOLS

Booth C-61

Devereux Schools will acquaint physicians with their facilities for educating and treating children having academic or emotional difficulties. Twelve Devereux Schools in Pennsylvania and the Devereux Ranch School in California offer controlled environment and modern training, shaped to each child's needs. The residing psychiatrist, physician and psychologist, cooperate with the referring physician in his plans for the child's training and care.

DEVILBISS COMPANY

Booths C-105, C-107

Kodachrome transparencies edpicting the distribution of aerosols in the lungs and bronchi is a feature of the DeVilbiss Company exhibit. This data supports clinical investigations and experimental work with aerosols of penicillin, streptomycin, epinephrine, and other substances. Instruments for all types of spray application will be displayed.

DIAPHAGM & CHEMICAL COMPANY

Booth C-140

DICTOGRAPH PRODUCTS, INC.

Booth C-113

THE DIETENE COMPANY

Booth C-34

At the Dietene Company exhibit you will discover a really palatable high protein diet supplement--MERITENE. Dietene Reducing Supplement and the 1000 calorie *Dietene Reducing* Diet will also be featured. Both MERITENE and DIETENE are Council-Accepted. A complimentary, personal type diet service will be available to physicians.

DOAK COMPANY, INC.

Booth C-174 (East ½)

DUKE LABORATORIES, INC.

Booth A-5

Duke Laboratories will exhibit Mediplast, elastic adhesive compress, wrapped individually and sterilized in conformity with regulations of the U.S. Food and Drug Administration; Elastoplast; Aquaphor; Basis Soap; Tecto; and Nivea--The Prescriber's Cosmetics.

E. I. DU PONT DE NEMOURS & CO., INC.

Booths C-96, C-98

Du Pont X-ray Films and Chemicals, "Patterson" X-ray Screens, and actual radiographs will be exhibited here. Of special interest to the photographic hobbyists will be 'Defender" Films, Papers, and Chemicals. This new exhibit of the Du Pont Photo Products Department of E. I. du Pont de Nemours & Co., Inc. will be finished in black and gray.

DUREX PRODUCTS, INCORPORATED

Booth A-131

Contraceptive specialties by Durex will highlight this exhibit. Devices and unusual packagings *never before shown* at an A.M.A. Convention, including the Bow-Bend diaphragm (hinged rim) will be of particular interest. Complete contraceptive sets in the new compact and sanitary Duracase will be appreciated by the physician and patient alike. Latest clinical information on both Lactikol Jelly and Lactikol Creme will be available.

E & J MANUFACTURING COMPANY

Booth C-72

EASTMAN KODAK COMPANY

Booths B-47, B-49, B-51

Full-color Kodachrome transparencies and radiographs to illustrate the theme, "Picture the Patient's Progress"...with photograph after photograph...with radiograph after radiograph--will highlight the Eastman exhibit. The cases selected emphasize the value of a series of photographs of radiographs in depiciting the patient's progress. Instructive diagrams will be included. Supplementing the transparencies and radiographs will be displays of photographic and x-ray products.

EATON LABORATORIES, INC.

Booth A-133

Furacin Soluble Dressing and Furacin Solution, topical antibacterial preparations which possess a wide antibacterial spectrum without injuring tissue, will catch your interest at the Eaton exhibit. Other specialties to be displayed include, Lorophyn Suppositories and Lorophyn Jelly, contraceptives of proven clinical effectiveness, containing a powerful spermicide.

EDIN ELECTRONICS COMPANY

Booth A-37

THOMAS A. EDISON, INC.

Booth A-149

J. EDWARDS & COMPANY

Booth B-50

EISELE & COMPANY

Booth C-168

ELECTRO-PHYSICAL LABS. INC.

Booth A-75, A-77

ELECTRO SURGICAL APPLIANCE CORP.

Booth A-139

Among the new items to be shown for the first time by Electro Surgical Appliance Corp. will be a fully rectified and filtered ELECTRONIC SCALPEL of unusual cutting qualities. This Scalpel is non feradic and does not interfere with radio. Several new developments in Proctal Snares and dessication instruments will also be shown.

J. H. EMERSON COMPANY

Booth A-107

The LUNG IMMOBILIZING CHAMBER which provides complete bilateral lung rest-without surgery or pneumothorax will be shown in the J.H. Emerson Company's display. Dramatic reports have shown that the very sick tuberculosis patients receive benefits by this new treatment.

ENCYCLOPAEDIA BRITANNICA, INC.

Booth C-32

ENDO PRODUCTS INC.

Booths B-161, B-163

Various Endo prescription and ampule specialties will be featured. Among the Council-accepted products shown will be Mesopin, selective gastrointestinal antispasmodic; Estromone, for estrogenic therapy; Norodin Hydrochloride, psychomotor stimulant and anti-depressant. Samples and literature will be available for distribution.

ETHICON SUTURE LABORATORIES

Booths B-121, C-127

Ethicon Sterile Pack Sutures, a new metal suture storage canister containing tubed sutures, packaged sterile and ready for use, will be the feature of the exhibit Ethicon Suture Laboratories has prepared for the A.M.A. Chicago Meeting. By eliminating the necessity for washing tubes and buying suture jars, Ethicon Sterile Pack Sutures save the Hospital an estimated $10 per bed per year, and four nurse hours per 100 beds per week.

ETHIX CORPORATION

Booth B-33

In their initial exhibit, Ethix Corporation will present a series of distinguished *formulas*, each one supplying a specific need--all of them together forming an intergrated line of Hypo-Allergenic Cosmetic and Dermatological Preparations.

EUREKA X-RAY TUBE CORP.

Booth C-149

EVAPORATED MILK ASSOCIATION

Booth B-58

The Evaporated Milk Association will display publications dealing with the properties and uses of evaporated milk in infant feeding, child nutrition, maternal welfare, social welfare, public health, and general nutrition. These publications, available without charge, are designed for professional people, and for distribution to those whom they serve. Register at Booth B-53 for these useful and helpful materials.

EXERCYCLE CORPORATION

Booth C-26

So many physicians have bought Exercycle for their personal use that Exercycle for the first time is being exhibited at an A.M.A. Convention. Exercycle operated by motor automatically provides cycling, riding, rowing, or swimming action, either separately or in combination, with varying degrees of intensity ranging from passive (relaxed) to mild or active. Excellent also wherever controlled exercise is indicated.

EXPERT BEDDING COMPANY

Booth B-119

FANCEE FREE MFG. CO.

Booth C-182

Fancee Free, a simple little elastic garter belt that fits around the waist in back and below the abdomen in front to eliminate all pressure, will be presented in booth C-182. It is excellent for maternity patients or others who must avoid pressure or binding. Two snap on satin tabs transform the Fancee Free into a combination garter belt and sanitary belt ending all "Double Belt" trouble.

H. G. FISCHER & CO.

Booths A-158, A-160, A-162

Interest at the H. G. Fischer exhibit will center on their New DeLuxe "RF-200" X-Ray Unit. Full 200 milliampere capacity, automatic controls of advanced design, rugged construction and fine appearance, are some of its features. Their new FCC Type Approved diathermy units will be demonstrated:

FISHER-STEVENS SERVICE

Booth C-102

This exhibitor maintains a mailing list of all practicing physicians in the entire country. The list is used by pharmaceutical manufacturers to distribute literature and samples by mail. Stop at booth C-102 and learn more about the direct mail campaigns of the Fisher-Stevens Service.

C. B. FLEET CO., INC.

Booth A-33

Latest information on the increasing popularity of Phospho-Soda (Fleet), the pure, stable, aqueous concentrate of the two U.S.P. sodium phosphates, will be available at the C.B. Fleet exhibit.

FLINT, EATON & COMPANY

Booth C-171

Recent research on Choline has introduced new hope for the sufferer from early and late cirrhosis of the liver. An easy and acceptable way of administering Choline to your patients will be displayed at Flint Eaton's booth C-171. The product, Choline Dihydrogen Citrate (Flint), is extremely palatable. A very comprehensive digest covering the present status of Choline therapy will be available.

FLORIDA CITRUS COMMISSION

Booth A-151

FOLEY MANUFACTERING COMPANY

B-93

Facts about the Foley Food Mill and an interesting demonstration showing how it saves time and food for the homemaker in the preparation of fresh cooked vegetables and fruits for all smooth diets may be had in Booth B-93.

THE FOREGGER CO. INC.

Booth A-141

The Foregger Company will show equipment for Endotracheal Anesthesia including some newly developed items of interest to Surgeons as well as Anesthetists. Recent developments in Anesthesia equipment will also be on display including special equipment for anesthetizing new-born Infants for the Blalock Operation, repair of cleft palate and similar procedures.

GAMMA INSTRUMENT CO., INC.

Booth C-64

GASTRO-PHOTOR LABORATORIES CORP.

Booth A-15

The new, $500, model of the Gastro-Photor -- "The Camera for Photographing the Interior of the Stomach" will be the item of interest here. With one exposure this Stomach Camera provides 16 gastrophotographs which make possible the diagnosing of ulcers hidden within rugal folds or in locations inaccessible to X-Ray observations. Samples of gastrophotographs will be displayed for first-hand observation.

GENERAL ELECTRIC COMPANY (LAMP DEPT.)

Booth A-24

The power of germicidal lamps to control mold growths and of infrared energy to penetrate human flesh will highlight the G-E Lamp exhibit. Portions of the live mold on various foods will be placed in a "germicidal shadow" to allow the mold to flourish. Physicians will be able to make a direct examination of the results; also to conduct on-the-spot measurements of the pentrating power of infrared radiant energy from heat lamps. Recording equipment will measure the penetration of the energy through human flesh independently of a subject's personal judgment.

GENERAL ELECTRIC X-RAY CORPORATION

Booths A-21, A-22, A-23, A-25

GENERAL FOODS CORPORATION

Booths A-143, A-145, C-120

GERBER PRODUCTS COMPANY

Booth B-111

GOMCO SURGICAL MANUFACTURING CORP.

Booth C-74

THE B.F. GOODRICH COMPANY

Booth A-166

The Sundries Division of The B.F. Goodrich Company will show samples of its entire line of rubber and Koroseal surgical goods in an attractive booth. Featured will be the new line of deluxe hospital specialties and the new all color catalog.

GRADWOHL LABORATORIES

Booths B-8, B-10

This interesting exhibit will cover the activities of Gradwohl Laboratories--the making of laboratory reagents and Government licensed testing sera; training of laboratory technicians; and the publication of a journal devoted to laboratory subjects, called LABORATORY DIGEST. Special features will be the daily demonstration of Anti-Rh tests, a display of material for the Papanicolaou diagnosis of carcinoma, and special stains and technique for this work.

GRASS INSTRUMENT CO.

Booth A-179

GRUNE & STRATTON, INC.

Booths B-13, B-15

Outstanding among new publications for general practice and specialties to be displayed here include Neuhof: VENOUS THROMBOSIS AND PULMONARY EMBOLISM; Daley and Miller: PROGRESS IN CLINICAL MEDICINE; Berson: ATLAS OF PLASTIC SURGERY; Fitzwilliams: CANCER OF THE BREAST; Hill and Dameshek: Rh FACTOR; Ponder: HEMOLYSIS; Spiegel (Editor): PROGRESS IN NEUROLOGY AND PSYCHIATRY VOLUME III; Wolberg: MEDICAL HYPNOSIS; Bellak: DEMENTIA PRAECOX. All periodicals of the British Medical Association will be available.

HAMILTON MANUFACTURING COMPANY

Booths B-63, B-65, B-67

Three suites of Examining Room Furniture will be displayed in the Hamilton exhibit: Deluxe Nu-Tone, the distinctive and modern Nu-Trend, and the professionally styled Steeltone. Also shown will be the No. 9905-B-AP All-Purpose Examining Chair Table, the No. 9902 Pediatric Table, the No. 9595 EENT Cabinet, and representative items of business office and reception room furniture.

HANOVIA CHEMICAL & MFG. COMPANY

Booths B-9, B-11

Modern ultraviolet self-lighting quartz lamps for orificial and body radiation, as well as Sollux Radiant Heat Lamps, jacketed type quartz germicidal lamps for operating rooms, nurseries and isolation wards and black light for diagnostic purposes will be on display in the Hanovia exhibit. Competent and courteous representatives will be at your disposal.

THE HARROWER LABORATORY

Booths A-27, A-29

H. J. HEINZ COMPANY

Booths C-97, C-99

PAUL B. HOEBER, INC.

Booth B-1

PAUL B. HOEBER, Inc., Medical Book Department of Harper & Brothers, will display advance proofs of two significant new books, Coley's NEOPLASMS OF BONE and Kaplan's RADIATION THERAPY. A complete line of distinguished titles, including the new 2nd Edition of Ridley & Sorsby's MODERN TRENDS IN OPHTHALMOLOGY and the new MacKenna's MODERN TRENDS IN DERMATOLOGY will also be available for inspection.

HOFFMANN-LAROCHE, INC.

Booth B-20

The Roche exhibit will be devoted exclusively to the council-accepted specialty, PROSTIGMIN. The many recognized uses of PROSTIGMIN are always of interest to physicians who are invited to stop at booth B-20. A staff of experienced representatives will be pleased to discuss PROSTIGMIN and other Roche specialties of interest to them.

HOLLAND RANTOS COMPANY, INC.

Booth A-73

KOROMEX JELLY and KOROMEX CREAM will be featured here. You may recall it was the Holland-Rantos Company, Inc., that "pioneered" the introduction of modern contraceptive technique frequently referred to as the Koromex Method. The medical background and clinical use of KOROMEX JELLY dates back to 1925. Medical service representatives will be on hand to discuss the latest data on KOROMEX JELLY and CREAM.

HOLLISTER-STIER LABORATORIES

Booth B-29

The spotlight at the Hollister-Stier booth will be on the beautiful plastic case accommodating the new and improved dropper vial for diagnostic allergens. Improved diagnostics are in the making, too. The complete and personalized allergy service of a pioneer and "specialist" in allergy - Hollister-Stier Laboratories - will be of interest to all physicians.

HOSPITAL LIQUIDS, INC.

Booth B-98

RICHARD HUDNUT

Booths A-118, A-120

THE HYGEIA NURSING BOTTLE CO.

Booth A-122

The new, improved Hygeia Nursing Bottle with extra capacity over 4 and 8 ounces will draw interest at booth A-122. Learn why prescribing the Hygeia Unit - including nipple, bottle, and glass cap - will help mothers and hospitals overcome their feeding problems. A trained representative will be in attendance.

HYGEIA, THE HEALTH MAGAZINE

Booths A-44, A-46

In the HYGEIA booth, you will find a pictorial representation of editorial contributors, the processes of editing, the methods used for screening and approving advertising and the various types of readers who benefit from this health magazine. Also presented is a series of sequence lighted color transparencies showing how HYGEIA's health information is used by professional, educational, and family groups.

ILLE ELECTRIC CORPORATIONS

Booth C-125

Ille Electric Corporation will demonstrate how the care of infantile paralysis, arthritis, and other disabling conditions, can be greatly improved by the use of Hydromassage Subaqua Therapy Tanks. They will also display an improved Mobile Whirlpool Bath with New Mobile Adjustable High Chair.

INHALATIONAL EQUIPMENT COMPANY, INC.

Booth A-165

Special attention is expected to focus on the Inhalational Equipment display. The exhibit will present the mechanics of Aerosol Therapy in the treatment of chronic and acute lung and sinus infections. Included will be a variety of methods of administering Aerosol Therapy, utilizing the Council-accepted I.E.C. Nebulizer as the basic unit, together with accessory equipment as a means of Aerosol administration.

INTERCHEMICAL CORPORATION - BIOCHEMICAL DIVISION

Booth A-127

The Biochemical Division will feature its modified protein hydrolysate, "ELAMINE Lyophilized," which has been specifically designed for intravenous amino-acid therapy. Visitors to the booth will have an opportunity to visualize several important steps in the manufacture of ELAMINE, particularly those dealing with the method of "freeze-drying." Representatives will be present to discuss parenteral alimentation.

INTERNATIONAL VITAMIN CORPORATION

Booths B-16, B-18

At the I.V.C. Booth there will be a full array of Council-accepted vitamin products. An especially interesting Vitamin "A" configuration will be shown in color transparency. Well-trained representatives and an M.D. will be in attendance at all times to describe and explain the uses of I.V.C. products.

IODINE EDUCATIONAL BUREAU, INC.

Booth B-85

JANEIL SHOP FOR HANDICAPPED GIRLS

Booth C-38

Here will be displayed pictures and charts of the various departments and activities of Spalding School for Handicapped Children, one of the largest and finest public schools of its kind in the world. Janeil Shop, a Sheltered Work Shop at Spalding, trains badly handicapped girls to sew. Their products, which are sold for their benefit, will be on display in Booth C-38. Guests will be welcome.

JOHNSON AND JOHNSON

Booths A-26, A-28

Hemo-Pak Hemostatic Absorbable Surgical Dressings will be the main feature in the Johnson and Johnson display of latest developments in surgical dressings.

JONES METABOLISM EQUIPMENT COMPANY

Booth C-157

A feature of the Jones Metabolism Equipment exhibit will be the JONES SUPER-MOTOR-BASAL, with its exclusive feature "Two Machines In One"-- a standard-size unit for average cases built into a double-size unit for convenient handling of all extreme cases. Technicians of many years' experience will be available for answering all questions on metabolism testing.

JORDAN PUMP COMPANY

Booth A-153

The Jordan Pump Company, for the past eighteen years builders of small, efficient, and inexpensive pressure and vacuum Units, will show vacuum and pressure Units and various other items adaptable to the medical and surgical fields. Two Units are especially adaptable to the use of Penicillin Inhalation Therapy.

"JUNKET" BRAND FOODS

Booths B-106, B-108

The importance of rennet in infant and adult nutrition and the value of rennet desserts in both normal and restricted diets will be explained here. Enlarged photos illustrate the action of the rennet enzyme in producing softer, finer, more readily-digestible milk curds. Authoritative literature describing dietary applications of rennet products and complimentary packages of "Junket" Rennet Powder and "Junket" Rennet Tablets will be available.

KANSAS CITY ASSEMBLAGE COMPANY

Booth C-100

The new and improved Padgett-Hood Dermatome, exhibited for the first time at an American Medical Association Convention, will feature an aluminum drum which gives increased lifting power, retains nearly all cement on the drum when skin is stripped from drum, automatically aligns the knife edge with the drum surface, and sets the knife edge to register with the scale.

THE KELLEY KOETT MANUFACTURING CO.

Booths A-62, A-64, A-66, A-68

Some new and interesting developments in X-ray equipment may be seen in the Kelley-Koett booth. These include a new 300 MA Generator and Control finished in beautiful Kelekote, designed to cover the entire range of radiographic and fluoroscopic requirements; and a new, inexpensive Pediatrician's Fluoroscopic Table, designed under the direction of a Pediatrician, to meet all Pediatric X-ray requirements.

KEYSTONE VIEW COMPANY

Booth A-55

Keystone will exhibit a new Telebinocular and Ortho-Trainer for use of transparencies, together with the Occupational Visual Service for industrial vision testing; Overhead Projector for 3¼ x 4 inch slides, 2 x 2 inch transparencies, and etched glass plates; home training material for use in all types of visual discomfort; and a new technique in squint training with the Keystone Stereo-Motivator.

KIDDE MANUFACTURING CO., INC.

Booths C-101, C-103

Two distinct features will comprise this exhibit: a display of the new *Kidde* Utero Tubal Insufflator with GASOMETER pressure control, providing diagnostic and therapeutic use of Carbon-Dioxide or opaque oil; and the increasingly popular *Kidde* Dry Ice Apparatus for use in the treatment of superficial skin lesions.

H.W. KINNEY AND SONS

Booths C-109, C-111

LAKESIDE LABORATORIES, INC.

Booth A-183

LANTEEN MEDICAL LABORATORIES

Booth C-80

The Lanteen exhibit will employ a new landscape photo mural background which has received many fine comments and compliments at recent medical meetings. Visiting physicians will find it worthwhile to see this attractive exhibit.

LEA & FEBIGER

Booth B-19

The Lea & Febiger exhibit will be of particular interest because of such outstanding new books and new editions as Ormsby and Montgomery--DISEASES OF THE SKIN; Frohman--BRIEF PSYCHOTHERAPY; Gray--ANATOMY OF THE HUMAN BODY; Buchanan--FUNCTIONAL NEURO-ANATOMY; Partipilo--SURGICAL TECHNIQUE AND PRINCIPLES OF OPERATIVE SURGERY; Krimsky--BINOCULAR IMBALANCE; Kraines--THE NEUROSES AND PSYCHOSES; Spaeth--OPHTHALMIC SURGERY; Ballenger--DISEASES OF THE NOSE, THROAT AND EAR; Lewin--THE FOOT AND ANKLE and many others.

LEDERLE LABORATORIES

DIVISION AMERICAN CYNAMID COMPANY

Booths C-119, C-121, C-123

The Lederle exhibit, devoted entirely to Council-accepted products, will merit the thoughtful attention of every physician. Trained individuals will be available to assist the visiting physician in every way possible regarding the field of biologicals, pharmaceuticals, and diagnostic procedures.

LIBBY, MCNEILL & LIBBY

Booth A-150

The advantages of the Libby Strained and Homogenized Foods will be described in the Libby, McNeill & Libby booth. Discussions pertaining to the dietary management of infants and older babies will be welcomed.

THE LIEBEL-FLARSHEIM COMPANY

Booth A-71

The special features of the Liebel-Flarsheim exhibit will be a display and demonstration of their latest model diathermy and Bovie electrosurgical equipment. Capable representatives will be on hand at all times to answer your questions about physical therapy and electrosurgical apparatus. Plan to inspect the interesting features of this exhibit.

ELI LILLY AND COMPANY

Booths B-40, B-42, B-44

LINCOLN LABORATORIES

Booth A-135

THE LINDE AIR PRODUCTS COMPANY

Booths B-141, B-143

A growth chart representing the thirty year rise of oxygen therapy importance in medicine will be featured here. Factors causing this rapid growth will be clearly shown. Supplementing the chart, Linde oxygen and oxygen therapy equipment will be exhibited, and the Beckman magnetic oxygen analyzer will be demonstrated. Special representatives will welcome your consultation on problems of oxygen and oxygen therapy apparatus.

J. B. LIPPINCOTT COMPANY

Booths C-1, C-3, C-5

J.B. Lippincott Company will present their Selected Professional Books, by outstanding authors. The 'pulse of practice,' gauged constantly by Lippincott, centers in an advisory board of active clinicians who constantly review the current and coming trends. Due to this publishing policy, more doctors look to Lippincott for timely, practical, dependable information of authority in all fields of medicine, surgery, dentistry, nursing and pharmacy.

LUZIER'S, INC.

Booth B-38

M & R DIETETIC LABORATORIES, INC.

Booth B-52

Similac, a food for infants during the all-important first year of life, will be displayed in booth B-52. Representatives will be in constant attendance and will welcome the opportunity to discuss the merits and suggested applications of the product in the feeding of the normal infant, as well as the infant requiring an individualized formula.

MACALASTER BICKNELL COMPANY

Booth A-85

MACHLETT LABORATORIES, INC.

Booth B-174

THE MACMILLAN COMPANY

Booth A-69

PSYCHIATRY IN A TROUBLED WORLD, a new book by Dr. William C. Menninger of the Menninger Foundation, will be offered by Macmillan. "Yesterday's war" from the psychiatric standpoint and "today's challenge"—a plea for application of psychiatric measures to present perplexing problems—is discussed. GLOMERULAR NEPHRITIS (Macmillan), containing Dr. Thomas Addis' method of diagnosing and treating Bright's Disease will interest the General Practitioner.

THE MAICO COMPANY, INC.

Booths C-84, C-86

MALLINCKRODT CHEMICAL WORKS

Booth C-138

THE MALTINE COMPANY

Booth C-50

MANHATTAN UNIFORM COMPANY

Booth C-146

The various types of professional garments for the office or the hospital will be on display in the Manhattan Uniform exhibit, or illustrated in their catalogue. These uniforms which are tailored-to-measure may be ordered in any of fifteen (15) materials including rayon. Sample swatches will be available.

MARCELLE COSMETICS

Booth B-56

The growing interest in Allergy will make the exhibit of Marcelle Hypo-Allergenic Cosmetics particularly attractive to all visitors. The fact that Marcelle formulas omit all known allergens, highly recommends these cosmetics for all persons with sensitive skins, or those with allergy problems--or as a precautionary measure. Sample cosmetics and formularies will be available to allergists, dermatologists, or all physicians.

THE S.E. MASSENGILL COMPANY

Booth C-156 (west ½)

F. MATTERN MFG. CO.

Booths A-41, A-43, A-45, A-47

A visit to the MATTERN Booths will enable you to personally examine the very latest and most modern line of Mattern X-Ray Apparatus to satisfy your every need. Qualified personnel will be pleased to answer your questions.

MCFEDRIES X-RAY COMPANY

Booth C-169

MCKESSON APPLIANCE COMPANY

Booths C-120, C-122

McKESSON & ROBBINS, INC.

Booths B-164, B-166

A display of accepted vitamin products and historical data showing development of the House of McKesson since 1833 will be featured here. Some of the modern laboratory procedures will be demonstrated.

MCNEIL LABORATORES, INC.

Booth A-140

MEAD JOHNSON & COMPANY

Booths B-175, B-177, C-41, C-43

Because of the increasing interest in therapeutic effects of protein, Mead Johnson & Company will devote booths C-41 and C-42 to some of the newer aspects of the subjects. Among the products to be displayed, in connection, are: Amigen, Protolysate, Nutramigen, Alacta, Casec, and Protenum. In booths B-175 and B-177, Dextri-Maltose will be featured. The use of cow's milk, water, and carbohydrate mixtures represents a system of infant feeding that consistently, for over three decades, has received universal pediatric recognition. No carbohydrate employed in this system of infant feeding enjoys so rich and enduring a background of authoritative clinical experience as Dextri-Maltose.

THE MEDICAL BUREAU

Booth C-18

In Booth C-18, the Medical Bureau, an organization serving as counselors in problems of medical and hospital personnel, will offer its facilities. Recommendations can be made of Diplomates of the American Boards, younger physicians interested in further training or assistantships, general practitioners, administrators, supervising and staff nurses, scientists, laboratory technicians, dietitians, and social workers.

MEDICAL CASE HISTORY BUREAU

Booth B-14

Exhibited here will be an inexpensive case history system which shows at a glance the complete history, development, and treatment. Of special interest is the unique method by which cases may be cross-indexed according to the disease directly upon the patient's history chart. Representatives in the booth will gladly demonstrate how these records are actually kept in the files.

MEDICAL FABRICS, INC.

Booth C-112

MEDICAL FILM GUILD

Booth A-97

MEDICAL MAILING SERVICE, INC.

Booth A-31

THE MEDICAL PROTECTIVE COMPANY

Booth B-62

The Medical Protective representatives will be at your service in booth B-62 to present their protection plan, and to explain the peculiar relations of the doctor to the law which governs your practice, or to discuss any particular phase of professional liability in which you are especially interested.

THE MENNEN COMPANY

Booth B-53

The Mennen Company will exhibit their two baby products - Mennen Baby Oil and Mennen Baby Powder. The Baby Oil is now being used routinely by the majority of hospitals that are important in maternity work.

MERCK & COMPANY, INC.

Booths C-21, C-23

THE WM.S. MERRELL COMPANY

Booth B-73

METRO-TEC COMPANY

Booth C-130

THE WM. MEYER CO.

Booth C-118

MICROTONE COMPANY

Booths A-78, A-80

THE C. V. MOSBY COMPANY

Booths C-4, C-6

A wealth of new and timely medical literature will be available for examination at the Mosby exhibit. Some of the very new releases to be shown will include Crossen OP[illegible], Patten-ger TUBERCULOSIS, Gra [illegible] METHODS AND DIAGNOSIS, [illegible] SOMATIC DIAGNOSIS AND [illegible] Willis PATHOLOGY OF TUMOURS, Ilgenfritz PREOPERATIVE AND POSTOPERATIVE CARE, Muncie PSYCHOBIOLOGY AND PSYCHIATRY, Mettler NEUROANATOMY, and the BRITISH SURGICAL PRACTICE.

MOTHERS' AID OF THE CHICAGO LYING-IN HOSPITAL

Booth C-38

The Mothers' Aid, an auxiliary of Chicago Lying-in Hospital, will present two renowned publications - Our Baby's First Seven Years' record book* gift for the mother and scrap book for the toddler. Their sale supports medical research to benefit mothers the world over. Available to hospitals for patients, gift shops and auxiliary earning funds.

* 20th printing - 700,000 copies sold.

V. MUELLER & COMPANY

Booths B-125, B-126, B-127, B-128

Two separate sections of the V. Mueller & Company exhibit will facilitate your inspection of the newest surgical equipment. One section will be devoted entirely to the latest in fine furniture and office equipment. Across the aisle, two additional booths will display interesting new instruments, both standard and special, for all several fields of surgery.

NATIONAL ASSOCIATION OF MARGARINE MANUFACTURERS

Booth B-110

Information on margarine, its ingredients and manufacture, and its role in sound nutrition may be found in Booth B-110. The National Association of Margarine Manufacturers invites your questions and views on the place of margarine in the diet. Current margarine literature and taste samples of margarine are available gratis.

NATIONAL DAIRY COUNCIL.

Booth C-48

"Food Makes a Difference," with emphasis on "Well-Fed Mothers ... Healthier Babies," will dramatize the National Dairy Council booth. The influence of diet during pregnancy upon the physical condition of the infant at birth, as shown by studies of the Department of Maternal and Child Health, Harvard School of Public Health, will be of special interest. Reprints interpreting the study will be available at the booth.

NATIONAL DAIRY PRODUCTS COMPANY, INC.

Booth C-114

Formulac infant food, a concentrated milk containing all the vitamins and minerals considered essential, will be featured in this exhibit. Since its introduction two years ago, Formulac has developed to the point where today it is generally accepted as a flexible, protective formula preparation. Representatives will be glad to explain its properties and to make it available at your hospital.

NATIONAL DRUG COMPANY

Booths C-152, C-154

THE NATIONAL ELECTRIC INSTRUMENT CO., INC.

Booth B-12

The National Electric Instrument Co., Inc., manufacturers of famous "National" illuminated diagnostic and cautery equipment, has completed extensive plans for demonstrating the uses of various surgical and ophthalmic products of interest to all specialists and general practitioners. Spotlighted for top interest is the new National Quaddiac Ophthalmoscope with instantly variable apertures and color filters.

NATIONAL INSTITUTE OF DIAPER SERVICES, INC.

Booth A-161

It does make a difference what diaper service a doctor recommends, says the NIDS whose exhibit may be seen here. Members now serve 150 metropolitan areas, and are the only diaper "service" operating under a compulsory national laboratory control which assures physicians that their diapers are safe. There is such a thing as a "prescription diaper service." Look for the NIDS Safety Seal, and stop at Booth A-161 for a bank to take home to the kiddies.

NATIONAL LIVE STOCK AND MEAT BOARD

Booth C-44

THOMAS NELSON & SONS

Booth A-14

Thomas Nelson and Sons will show advance proofs of the first of a new line of bound books - VIRUS DISEASES OF MAN, Second Edition, by C. E. van Rooyen and A. J. Rhodes, of the University of Toronto. Thomas Nelson and Sons are publishing this completely revised and enlarged edition as a result of insistent demand. The regular line of loose-leaf publications will also be displayed.

NESTLE'S MILK PRODUCTS, INC.

Booth B-149

For your relaxation the Nestle Company cordially invites you to enjoy a delicious hot cup of Nescafe. And, for your information, especially qualified representatives will be on hand to answer your questions on any of Nestle's milk products - used for babies 'round the world. New pieces of valuable professional literature will be available.

NORTH AMERICAN PHILIPS CO., INC.

Booths A-113, A-115

NOVOCOL CHEMICAL MFG. CO., INC.

Booth C-180

MONOCAINE HCl and MONOCAINE FORMATE, widely used, potent anesthetics, the latter for spinal anesthesia, will be displayed in the Novocol Chemical Manufacturing Company booth. The convenient and economical ANESTUBE (cartridge) system will be gladly demonstrated by competent representatives.

OBRIG LABORATORIES, INC.

Booth A-147

A feature of the exhibit of Obrig Laboratories, pioneer in the manufacture of plastic contact lenses, will be an automatic slide film showing the use of contact lenses in various eye conditions.

THE OHIO CHEMICAL & MFG. CO.

Booths A-119, A-121, A-123, A-125

LYDIA O'LEARY, INC.

Booth C-170

ORTHO PHARMACEUTICAL CORPORATION

Booth B-173

Featured here will be the well-known line of Ortho specialties for the control of conception, including Ortho-Gynol, Ortho-Creme and Ortho Diaphragms as well as Ortho Sets. Ortho Professional Service Representatives will be on hand to discuss these items with you at your convenience.

ORTHOMATIC MATTRESS COMPANY

Booth C-144

On display here will be the new Air Foam Mattress, a recent development of Orthomatic Mattress Company. Its porous construction, anatomically correct 'cushioning,' flexibility, etc., make it particularly beneficial in bone cases, low back conditions, etc. Additional information will be available at Booth C-144.

ORTHOPEDIC FRAME COMPANY

Booths C-158, C-160

The Orthopedic Frame Company will announce a new and important tool for the Orthopedic Surgeon - the Stryker Oscillating Bone Saw. On display will also be found an instrument with many possibilities for the Orthopedic Surgeon. The oscillating blade makes rapid, safe cuts in bone. The oscillating motion makes possible a variety of cuts not possible with a circular saw.

OXFORD UNIVERSITY PRESS, INC.

Booth B-124

A visit to Oxford's complete showing of new books by American authors will be worth your while. Important titles include DETAILED ATLAS OF THE HEAD AND NECK, by Truex and Kellner; JAUNDICE, ITS PATHOGENESIS AND DIFFERENTIAL DIAGNOSIS, by Movitt; SYMPOSIUM ON ENDOCRINOLOGY OF NEOPLASTIC DISEASES, edited by Twombly and Pack; HODGKIN'S DISEASE AND ALLIED DISORDERS, by Jackson and Parker; MODERN TREATMENT OF PEPTIC ULCER, by Windelstein; HEADACHE AND OTHER HEAD PAIN, by Wolff; TREATISE ON SURGICAL INFECTIONS, by Meleney. DIABETES AND ITS TREATMENT, by Barach.

THE G. H. PACKWOOD MFG. CO.

Booth C-30

The G. H. Packwood Manufacturing Company will again present it nationally distributed PAXLANOSAV HEAVY DUTY Granulated Skin Cleanser. This PAX Skin Cleanser contains exclusive PAXLANOSAV BLENDED EMOLLIENT combining over 3% anhydrous USP lanolin plus additional percentages of other fine emollient oils. PAXLANOSAV HEAVY DUTY quickly develops exceptionally profuse lather, remains free flowing, and can be used in good commercial granulated or powdered soap dispensers.

PARAVOX, INC.

Booth C-42

The newest Paravox Hearing Aids, including new adaptations of printed circuits will be on display here. Background display will feature pictorially the "usual HEARzone". Included in the exhibit will be samples of internal-type plastic chassis, the new magnetic receiver, and several printed circuit panels, also a new type of 100 hour, carbon-zinc "A" battery.

PARKE, DAVIS & COMPANY

Booths B-168, B-170, B-172

THE E. L. PATCH COMPANY

Booths C-14, C-16

To any physician concerned with the treatment of functional constipation, The E. L. Patch exhibit will hold a special attraction. On display will be the three types of Kondremul—Plain, with Cascara, and with Phenophthalein. You won't want to miss this interesting exhibit.

PEERLESS X-RAY LABS. AND MFG. CORP.

Booths B-86, B-88

THE PELTON AND CRANE COMPANY

Booths C-11, C-13

PENICILLIN MACHINE CO.

Booth C-66

PERKIN-ELMER CORPORATION

Booth B-117

MURLE PERRY

Booth B-46

A Colostomy and Ileostomy Appliance of unusual design will be exhibited by Murle Perry. Made of 1/8" clear plastic in several sizes and models with interchangeable inserts which enable proper fitting of all stomas, regardless of location. Latest model separates like two saucers for thorough and easy cleaning. Cellulose pad adds to comfort.

PET MILK SALES CORPORATION

Booths B-41, B-43, B-45

An actual working model of a milk condensing plant in miniature will be exhibited by the Pet Milk Company. this exhibit offers an opportunity to obtain information about the production of Pet Milk, its use in infant feeding, and the time-saving Pet Milk services available to physicians. Miniature Pet Milk can's will be given to the physicians who visit the Pet Milk booth.

PETRA MANUFACTURING COMPANY

Booth C-110

Petra Manufacturing Company will exhibit a complete line of attractive, protective KRESTEX Plastic Aprons for the doctor, surgeon, nurse, and office assistant, also utility covers, pillow cases, mattress covers, and yard goods. KRESTEX is water repellent, acid, liquid, dust, dirt, and chemical resistant: Garments are easy to clean; a whisk of a damp cloth will wipe off any accumulations on the material.

PHILIP MORRIS & COMPANY

Booths A-52, B-39

Philip Morris & Company will demonstrate the method by which it was found that Philip Morris Cigarettes, in which diethylene glycol is used as the hygroscopic agent, are less irritating than other cigarettes. Their representatives will be happy to discuss researches on this subject and problems on the physiological effects of smoking.

PICKER X-RAY CORPORATION

Booths A-124, A-126, A-128, A-130

The Picker X-Ray Corporation will exhibit the Series '200' motor drive tilt table equipped with a spot film device; the Fully Automatic Electronic V-7 Vertical Control; a 100 MA motor drive Century unit; new type 15 MA Mobile unit; a complete line of accessory items including the new ANHYDRATOR for drying films without heat; the underwriter-approved EXPLOSION-PROOF ILLUMINATOR; and the new Weisman GYNOGRAPH.

THE GEORGE P. PILLING & SON CO.

Booths B-59, B-61

The Pilling exhibit will offer an extensive line of fine surgical instruments, both for general use and for many specialized applications. Bronchoesophagologists will be especially interested in the new Broncalloy instruments, made in Pilling's outstanding new stainless metal, developed especially for the bronchoscopic field. Many new instruments for use in otorhinolaryngology, thoracic surgery, and other special fields will also be exhibited.

PITMAN-MOORE CO.

Booth B-92

Among other products, Pitman-Moore will feature the dosage form of sulfadiazine most recently accepted by the Council on Pharmacy and Chemistry. Known as Magmoid Sulfadiazine, this is a smooth, creamy, orange-flavored liquid, containing in each average teaspoonful 0.5 Gm. (7.7 grs.) of sulfadiazine. Also featured will be the new Ultraviolet Irradiation Killed Rabies Vaccine, a product of considerably more potency than vaccines killed by ordinary methods.

PREMO PHARMACEUTICAL LABORATORIES, INC.

Booth A-57

W. F. PRIOR COMPANY

Booth A-19

Of special interest at the Prior exhibit will be their LOOSE-LEAF Publications: Tice's MEDICINE, Lewis-Walter's SURGERY, Brennemann-McQuarrie PEDIATRICS, and Davis' GYNECOLOGY AND OBSTETRICS. During 1947 approximately 2000 New and Revised pages of these reference works were sent to subscribers to bring them up-to-date. In 1948 several hundred new pages will be furnished to owners of these sets, including an entirely new volume for Tice's Medicine on Gastrointestinal Diseases.

THE PROCTER & GAMBLE COMPANY

Booths B-81, B-83

The Procter and Gamble Company will offer four time-saving leaflet pads for doctors: "Instructions For Routine Care of Acne," "Instructions For Bathing a Patient in Bed," "Instructions For Bathing Your Baby," and "The Hygiene of Pregnancy" all designed to answer patients' questions on routine care.

PROFESSIONAL BUDGET PLAN

Booth A-49

PROFESSIONAL EQUIPMENT COMPANY

Booth A-116

The exhibit of the Professional Equipment Company will feature the first showing of a new Vertical Fluoroscopy Attachment recently developed for the Profexray Table Combination Radiographic and Fluoroscopic Unit. This attachment synchronizes the travel of the screen and powerhead, both vertically and horizontally, with the patient standing or seated at the end of the table. Other Profexray Units which will be exhibited include the Vertical Combination, the Mobile and Portable Units.

THE PROMETHEUS ELECTRIC CORP.

Booth B-142

PURITAN COMPRESSED GAS CORP.

Booth C-60

Puritan Compressed Gas Corporation will be represented with a completely new convention exhibit featuring, among their full line of medical gases and gas therapy equipment, a display of authentic photographs showing actual installations of some of the latest PURITAN equipment. Representatives will welcome your visit.

THE PYRAMID RUBBER COMPANY

Booth A-155

By means of a new device that simulates actual nursing, the Evenflo exhibit will show how the air pressure *in the Evenflo Nurser is kept constant.* The air, admitted thru the pin hole valves in the Evenflo Nipple, bubbles thru the formula to relieve the vacuum as the milk is withdrawn. By adjusting the Evenflo Cap the rate of flow is altered to suit the individual infant.

RADIUM CHEMICAL COMPANY, INC.

Booth C-45

Facts about Radium and Radon Applicators and Accessories for the treatment of cancer and allied diseases will be given here. In addition to their complete line, the NEW MONEL RADIUM APPLICATOR, designed by the Radium Chemical Company, Inc. in accordance with specifications of otologists, will also be displayed.

THE RADIUM EMANATION CORPORATION

Booth A-82

The Radium Emanation Corporation will exhibit a wide variety of instruments and applicators used in modern Radium Therapy, including permanent and removable LEAK-PROOF radon seeds. A well-informed representative will be available to explain the equipment and its usage.

RARE CHEMICALS, INC.

Booths C-159, C-161

Male hormone preparations--Testosterone Propionate "Rare" for parenteral use and Methyl Testosterone "Rare" for oral use--will be the main feature of this exhibit. Other products to be included: Dienestrol "Rare" (new synthetic estrogen), Acidolate (liquid detergent), Dermolate (cake detergent), Gitalin (cardiac glycoside), and Salysal (salicylate which requires no alkali).

RAYTHEON MANUFACTURING COMPANY

Booth C-142

Latest console and portable *models* of the Microtherm, a microwave (radar) diathermy generator, will be exhibited. This equipment, the result of advanced technical research, provides a new medical tool. Microwaves and their special characteristics which make them particularly suitable for deep heating of the human body will be explained; and the new techniques of microwave therapy, demonstrated.

REED AND CARNRICK

Booth B-48

The Reed & Carnrick Institute for Medical Research will have an interesting display of Estrogenic Substances, R & C; Meprane Dipropionate (brand of Promethestrol dipropionate); orally potent synthetic *estrogen; and Solution Thiamine Hydro*chloride, R & C.

REXAIR DIVISION

Booth B-76

RITTER COMPANY, INC.

Booths A-110, A-112

WILLIAM H. RORER, INC.

Booth C-166

Carfusin "Rorer," Council-Accepted brand of Carbol-Fuchsin Paint, also known as Castellani's Paint will be the focal point of attention in Rorer's exhibit. The successful treatment of "Athletes Foot" and other fungus infections with Carfusin "Rorer" will be particularly *featured. Various* other Council-Accepted Rorer products, including Mannitol Hexanitrate, Diethylstilbestrol, Thiouracil, and other modern therapeutic aids, *will* be displayed.

ROYAL METAL MANUFACTURING CO.

Booth C-132

The very latest in reception room furniture will be shown by Royal Metal Manufacturing Company, makers of Royalchrome Furniture. Royalchrome will stress the fact that *you can completely* furnish your office with correlated furniture of the same type and beauty.

SAFETY GAS MACHINE CO., INC.

Booth A-12

SANBORN COMPANY

Booth B-21

SANDOZ CHEMICAL WORKS, INC.

Booths B-160, B-162

W.B. SAUNDERS COMPANY

Booths B-2, B-4, B-6

SCHENLEY LABORATORIES, INC.

Booth B-22

Penicillin will highlight the Schenley Laboratories, Inc. exhibit. *Their comprehensive line of* Penicillin products including Penicillin Tablets, Penicillin Troches, Penicillin Ointment, Penicillin Ophthalmic Ointment, etc., will be featured; and well-informed *personnel will be in attendance.*

SCHERING CORPORATION

Booth A-39

Schering Corporation, the world's largest manufacturer of hormones, will feature Estinyl (ethinyl estradiol) the most potent oral estrogen in clinical use today. Neo-Iopax, a safe urographic radiopaque medium, and Priodax, a standard cholecystographic medium will also be displayed. *Members of the Medical and Professional Service* Staffs of Schering will be present to welcome *inquiries on these important Council-Accepted* Preparations.

SCHIEFFELIN & CO.

Booth C-77

Schieffelin BENZESTROL, a non-stilbene synthetic estrogen developed in the research laboratories of Schieffelin & Co. will be featured. A qualified staff will be in attendance to explain the advantages of this product, and to answer questions with regard to other Schieffelin specialties.

JULIUS SCHMID, INC.

Booth C-116

Here physicians may view reproductions in color showing how, after examination of the patient, their prescription for the correct size RAMSES' Prescription Packet #501 will supply the patient optimum protection with simplicity in use. Representatives will be on hand to answer questions regarding RAMSES Flexible Cushioned Diaphragm, RAMSES *Diaphragm Introducer,* RAMSES *Vaginal Jelly,* RAMSES Vaginal Applicator, and RAMSES Fitting Rings.

G. D. SEARLE & CO.

Booths A-56, B-57

At the Searle booths a large number of anatomic and pathologic subjects will be exhibited in colored translites, colored slides, and plastic models. They will illustrate such various *conditions as conjestive heart failure, bronchial* asthma, hay fever, colitis, amebiasis, active rheumatoid arthritis, etc. Featured products of Searle Research will be Aminophyllin, Metamucil, Diodoquin, and Gold Sodium Thiosulfate.

SHAMPAINE COMPANY

Booths A-176, A-178

The Shampaine exhibit will feature the Perfection Major Operating Table, which is completely head-*end controlled; the famous Martin All-Purpose Chair-*Table; and a complete line of physicians' steel furniture, as well as upholstered reception room furniture. Factory trained representatives will be in attendance to discuss equipment problems with the doctors.

SHARP & DOHME, INC.

Booths C-69, C-71, C-73

Items of special interest at this exhibit include Blood Group Specific Substances A and B for conditioning group O blood to neutralize the anti-A and anti-B isoagglutinins; a new *dosage of 'Delvinal' Sodium Vinbarbital for* the production of obstetric amnesia and analgesia, 'Cresatin' Ointment for the treatment of common mycotic skin infections; and new antibiotic preparations including Tyrothricin along with 'Sulfathalidine' and 'Sulfasuxidine', intestinal bacteriostatic agents.

SHAY MEDICAL AGENCY

Booth B-23

*For those interested in securing better appoint*ments or seeking a different location, the Shay Medical Agency will have available a list of openings in Industry, Private Practice, Group Clinics, Public Health Organizations, Hospitals and Institutions, Universities and Medical Schools. You are invited to avail yourself of their services and to consult with them on problems of personnel.

THE SHEPARD ELEVATOR COMPANY

Booth B-178

In the Shepard Elevator exhibit may be seen *a novel demonstration of an actual* full-size HomeLIFT Residence Elevator in operation. Visitors will have the opportunity of riding in the HomeLIFT from floor to floor of the two-story exhibit.

SIEBRANDT MFG. CO.

Booths B-64, B-123

J. SKLAR MANUFACTURING CO.

Booth B-140

The Sklar exhibit will present an impressive display of new and standard Stainless Steel Surgical Instruments, many of which have never before been shown at an A.M.A. Convention. The display will also include *Sklar's full line* of Suction and Pressure Apparatus, Sklar's Improved Schiotz Tonometer, and the famous Davidson's Pneumothorax Apparatus.

CARROLL DUNHAM SMITH PHARMACAL CO.

Booth C-58

THE SMITH-DORSEY COMPANY

Booth C-54

SMITH, KLINE AND FRENCH LABORATORIES

Booths C-27, C-29

C. M. SORENSEN CO., INC.

Booth A-7

THE SOUNDSCRIBER CORPORATION

Booth C-184

Right next to the ever popular Physicians Art *Exhibit, The SoundScriber* Corporation will display SoundScriber electronic disc dictating equipment. This smart display will feature in large photographic treatment, some of the many and varied medical uses for SoundScriber. Doctors may actually dictate to this plastic disc equipment and see, by actual experience, just how it serves the medical profession.

SPENCER, INCORPORATED

Booth C-19

Spencer Individually Designed Supports prescribed by physicians in conservative and post operative treatment of ruptured intervertebral disc, sacroiliac and lumbosacral sprain, visce*roptosis, hernia and other conditions* will be featured. The Spencerflex for Men -a revolutionary and functional support design--will be of especial interest as will be the Spencer Breast Forms and the new adjuvant to thoracic surgery--the Spencer Thoracoplasty Binder.

SPINDLER AND SAUPPE

Booth A-157

THE SPIRELLA CO., INC.

Booths C-124, C-126

Spirella will show how their Foundation Garments use an entirely new and different method of corsetry designing. The unique Spirella method includes the use of exclusive modeling *Garments* which are adjusted to the patient to give just the degree of support desired. Then measurements are taken of the supported figure, and the patient's Spirella is individually made to exact specifications.

E. R. SQUIBB & SONS

Booth-139

With R.C.A., E. R. Squibb & Sons is sponsoring the *television program* being put on by Northwestern University Medical School. In booth B-139, E. R. Squibb & Sons is also presenting an exhibit on STREPTOMYCIN. A *series of colored slides* on current clinical problems in the use of this drug will be shown in continuous projection on a screen centered in the booth. Stress is *laid on* two important points: Action of Streptomycin on the eighth nerve, and the development of resistance.

STANDARD X-RAY COMPANY

Booth B-171

In Booth B-171 the Standard X-Ray Company will exhibit modern x-ray apparatus, especially designed for office installation. Attendants will be glad to furnish complete information *and recommendations* for individual requirements.

STEPHENSON CORPORATION

Booth C-90

R. J. STRASENBURGH COMPANY

Booth A-159

Anemias and the position of Folic Acid therapy in their management will be featured. Panels depicting the development and background of other Council-Accepted products will also be displayed. Capable representatives, including members of Strasenburgh's Research Staff, will be present at all times.

STRONG COBB AND COMPANY, *INC.*

Booth C-156 (East ½)

SURGERY, GYNECOLOGY AND OBSTETRICS

Booth A-6

The character, personality and quality of the journal "Edited by Practicing Surgeons to Meet the Needs of the Practicing Surgeon" *is depicted* at booth A-6. The printing, Illustrations, and editorial standard are portrayed through "Translites" which illustrate briefly the many features of America's foremost surgical journal.

SWIFT & COMPANY

Booths B-26, B-28

TAMPAX INCORPORATED

Booth A-59

Hygienic and comfortable protection afforded *in the* TAMPAX *method* of menstrual care and the importance of professional instruction of patients in the correct use of intra-vaginal tampons will highlight this exhibit. Educational consultants will share with you informal problems about which women have expressed need for guidance. New anatomical charts showing the female reproductive organs, prepared under the supervision of Robert L. Dickinson, M.D., will be available.

TAYLOR INSTRUMENT COMPANIES

Booths C-129

W. A. TAYLOR & COMPANY

Booth C-150

Diagnostic aids in the analysis of blood and urine will highlight the W. A. Taylor exhibit. Colorimetric equipment for determining sulfa drugs, blood sugar, NPN, urea nitrogen, urine pH, thiocyanate, icterus index, hemoglobin, cholesterol and PSP, supplied with guaranteed permanent color standards mounted by sets for each determination in plastic slides, and apparatus for determining blood chlorides and vitamin deficiencies will also be available.

THE TECHNICON COMPANY

Booths A-1, A-3

The AUTOTECHNICON which provides automatic tissue processing and staining by any preferred histologic technique; will be the SCOPICON which offers a most powerful light source for photomicrography or microprojection, either on wall screen, or in a dark-chamber table for small-group study; and the Technicon FRACTION COLLECTOR for automatic collection of fractional constituents in biochemical solutions.

TELEX, INC.

Booth C-172

TEXAS PHARMACAL COMPANY

Booth C-52

The Texas Pharmacal Company will exhibit a complete line of hypo-allergenic cosmetics, marketed under the name of Allercreme, also bases and vehicles for use in preparing dermatological prescriptions.

CHARLES C THOMAS PUBLISHER

Booth C-2

MARVIN R. THOMPSON, INC.

Booths C-162, C-164

THE TOIDEY COMPANY

Booth B-176

Pediatricians and other physicians who care for children, will want to call at booth B-176, near the Art Exhibit, to see the new Toidey Specimen Collector, helpful in getting specimens for urinalysis from both the infant and the growing toddler. Special complimentary discounts will be given physicians on orders for Little Toidey and allied items, including comfySAFE AutoSeat.

THE TOWER COMPANY, INC.

Booth B-130

U.M.A. INC.

Booth B-24

PERIPHERAL VASCULAR DISEASES will headline the U. M. A. exhibit. Here you will see the COLLENS Sphygmo-oscillometer, a blood pressure apparatus and oscillometer combined in one instrument, for the diagnosis of Vascular Disease; and the COLLWIL Intermittent Venous Occlusion Apparatus, for the therapy of Vascular Diseases.

UNIVERSAL PRODUCTS CORP.

Booth B-120

UNIVERSAL X-RAY PRODUCTS, INC

Booth C-176

THE UNIVERSITY OF CHICAGO PRESS

Booth C-24

Distinguished for authoritative content and excellence of editorial work, the books of University Presses claim enviable rank among non-fiction and technical publications. The Association of American University Presses has arranged a cooperative exhibit for your enjoyment at this meeting--and to give you an opportunity to purchase some of the important titles for your library.

THE UPJOHN COMPANY

Booths B-116, B-118

The theme of The Upjohn Company exhibit will be "Adrenal Cortex and Resistance." The central panel of the exhibit symbolizes that man's resistance to stress is being increased by science. The other panels show the effect on the adrenals of various stresses -- infection, exercise, surgery, and anoxia. The final panel shows the relative potency of adrenal cortex sterile solution and lipo-adrenal cortex steril solution

U.S. VITAMIN CORPORATION

Booth C-7

THE VANTA COMPANY

Booths C-76, C-78

VANTA garments for infants -- layette items without pins or buttons and Self-Help garments for Toddlers will be exhibited in Booths C-76, C-78 Vanta, originator of the Tie Vest, Sun Suit, K-Band Baby Bess Hose, and other important features, will also show No-Fas-Ning shirts and the latest developments in proper clothing.

VARICK PHARMACAL CO. INC.

Booths C-81, C-83

VICTOR PRODUCTS CORPORATION

Booth A-109

WALGREEN DRUG COMPANY

Booth A-137

One of America's most modern Prescription Departments as developed by Walgreen Drug Company for future installation in its stores will be seen here. Complete in every respect, this new unit will go into service in a new Walgreen Drug Store when the Convention is over. Your full inspection is invited. Walgreen Registered Pharmacists in attendance will be happy to hear your comments.

WALKER VITAMIN PRODUCTS, INC.

Booth B-104

Walker will again exhibit its line of Council-Accepted vitamin tablets, capsules, injectable solutions, and pediatric drop preparations. Experienced representatives in attendance will be qualified to discuss all phases of vitamin therapy.

WALLACE LABORATORIES, INC.

Booth B-3

WALLACE & TIERNAN PRODUCTS, INC.

Booth C-177

WALTON LABORATORIES, INCORPORATED

Booths A-61, A-63, A-65

Shown for the first time at an A.M.A. Annual Session will be the newly developed Oxygen Tent Humidifier of Walton Laboratories, Inc. This unit makes it possible to maintain a high humidity in an oxygen tent while oxygen is being administered. Other humidifiers of interest will include Pottery and Bronze table models; single and duplicate cabinets, and a highboy Model.

THE WANDER COMPANY

Booth A-87

Visitors are invited to stop at the Wander Company booth for a drink of delicious Ovaltine. Attendants will gladly answer any questions you may have about the composition, merits, and usefulness of Ovaltine. Valuable, informative literature on nutrition will also be available for distribution.

WILLIAM R. WARNER AND CO., INC.

Booths B-82, B-84

WATERS CONLEY COMPANY

Booth C-8

A new Automatic Home Pasteurizer which offers safe, pasteurized milk to every farm family in rural areas where commercially pasteurized milk is unavailable will be displayed at the Waters Conley exhibit. Also featured will be some of the excellent scientific instruments made by the Waters Conley laboratories, including the Cardiotachometer and the Kymographic Camera.

WECO PRODUCTS COMPANY

Booth C-140

This attractive exhibit will be devoted to Dr West's Miracle-Tuft Toothbrushes. Combining exaggerated size, color, and illumination, Dr. West's have reproduced a giant Miracle-Tuft Toothbrush and its well-known glass package. Lithographed in full color on transparent parchment and shaped like the actual glass package, it makes a pleasing and powerful reminder to the layman to replace his Dr. West's Miracle-Tuft Toothbrush.

WELCH ALLYN, INC.

Booth B-5

Visitors to the Welch Allyn exhibit will find a wide variety of diagnostic instruments -- the ophthalmoscope, otoscope, rectal instruments, transformers, and laryngoscopes. Educational slides, photographs, and paintings will assist the doctor in the more efficient uses of diagnostic instruments.

THE WESTERN ELECTRIC COMPANY

Booth A-174

Western Electric's 4-Type Group Audiometer for testing the hearing of as many as forty persons at a time, as well as the 6-Type Audiometer for individual hearing tests, will be shown here. In addition, Western Electric's new Models 65 and 66 Hearing Aids will be demonstrated. Visitors to this exhibit will also have an opportunity to review important new developments of Bell Telephone Laboratories.

WESTINGHOUSE ELECTRIC CORP.

Booths A-36, A-38, B-35, B-37

Four major units will be exhibited by Westinghouse X-Ray Division; the DUOFLEX Table with the new 4 on 1 Spot Film Device and Reciprocating Bucky; the MONOFLEX-a single tube diagnostic unit; the RX-a single tube unit designed especially for the general practitioner and small hospital; and the PFX - the mass chest x-ray unit. In addition, various models of automatic controls will be displayed.

WHIRLPOOL CARRIAGE, INC.

Booth C-28

WHITE LABORATORIES, INC.

Booths B-69, B-71, B-94, C-15, C-17, C-94, C-95

THE WILLIAMS AND WILKINS COMPANY

Booths C-10, C-12

Convention visitors are cordially invited to visit the brand new exhibit of The Williams & Wilkins Company. It will reflect modern design and present new features never before used by a medical publisher, including a built-in slide-projection apparatus. More than 20 new 1948 books will be displayed.

·WINTHROP-STEARNS INC.

Booths C-47, C-49, C-51, C-53

Winthrop-Stearns Inc.—new owner of the businesses formerly conducted by Winthrop Chemical Co. and Frederick Stearns & Co.-will feature transparencies of beautiful medical art by the well-known artist, Mr. Leon Schlossberg. The exhibit includes (1) kidney and renal pelvis and calices; (2) head with paranasal cavities; (3) section through woman at term; (4) cardiovascular failure and edema; (5) normal heart with valves; (6) brain, including visualization of the thalamus, hypothalamus, and medulla oblongatha; (7) normal bone marrow; (8) pathogenesis of hypertension.

WISCONSIN ALUMNI RESEARCH FOUNDATION

Booth B-60

The Foundation will show by charts the results of recent studies with the anticoagulant Dicumarol and with diluted plasma determinations. It will also show the effect of other substances on prothrombin. Christian P. Segard, M. D., Medical Director of the Foundation will be at the booth.

THE MAX WOCHER AND SON CO.

Booth C-93

WOODWARD MEDICAL PERSONNEL BUREAU

Booth B-7

Woodward Medical Personnel Bureau, with a record of 52 years of continuous service to the profession will offer its facilities in Booth B-7. Credentials of really outstanding medical personnel seeking appointments and unusual openings for qualified men in all specialties will be available. Physicians, hospital managers, and other executives will want to stop by for a discussion of their personnel problems.

WYETH INCORPORATED

Booths B-66, B-68, B-70, B-72

THE YEAR BOOK PUBLISHERS, INC.

Booth C-9

F. E. YOUNG AND COMPANY

Booth A-129

ZENITH RADIO CORPORATION

Booth A-167

On display here will be the new Zenith '75' Hearing Aid -- the radionic instrument formally announced to the profession in the J.A.M.A. of February 28, 1948. Zenith representatives will be pleased to explain a plan whereby the '75' can be tested by any physician without cost or obligation to him or his hard-of-hearing patients.

ZIMMER MANUFACTURING COMPANY

Booth B-113

In addition to a complete line of splints and all types of fracture equipment, Zimmer will display new and improved instruments including the Moreira Stud-Bolt, Myerding Chisels-Gouges-Osteotomes, Bone Clamps, Doctor Eggers Contact Splint, Bone Plates and Cross Slotted Screws, Two-Speed Hand Drill, Intramedullary Nails & Instruments, Scott-McCracken Periosteal Elevators, Blount Staple Set, and the Luck Bone Saw.

ORGANIZATION SECTION

JOINT COMMITTEE FOR THE COORDINATION OF MEDICAL ACTIVITIES

Report of Meeting in Chicago, March 6, 1948

The Joint Committee for the Coordination of Medical Activities met in the Board Room of the American Medical Association Building in Chicago, Saturday, March 6, 1948. The meeting was called to order by the Chairman, Dr. Ernest E. Irons. Members, liaison members and guests present included:

Dr. Donald G. Anderson
Brig. Gen. George E. Armstrong
Dr. Walter L. Bierring
Dr. Frederick A. Coller
Mr. P. H. Costello
Dr. W. Palmer Dearing
Dr. Warren F. Draper
Capt. William E. Eaton (MC), U.S.N.
Dr. Morris Fishbein
Father John P. Flanagan, S.J.
Dr. J. F. Hammond
Dr. Elmer L. Henderson
Mr. Thomas A. Hendricks
Dr. Ernest E. Irons
Dr. George F. Lull
Capt. F. L. McDaniel (MC), U.S.N.
Dr. J. J. Moore
Dr. H. B. Mulholland
Dr. Walter L. Palmer
Dr. James E. Paullin
Col. Paul I. Robinson
Dr. R. L. Sensenich
Dr. E. R. Serles
Miss Mary Switzer
Mr. Kenneth Williamson

The Surgeon General of the Navy requested that the Medical Department of the Navy should have two representatives, so Captain Eaton will continue his connection with the Joint Committee and Captain McDaniel will represent the Bureau of Medicine and Surgery. Mr. P. H. Costello, secretary of the National Association of Boards of Pharmacy, was in attendance in place of Dr. Fischelis, representing the American Pharmaceutical Association.

NAVY MEDICAL TRAINING PROGRAM IN PACIFIC

Captain McDaniel read the following memorandum, signed by Robert V. Schultz, Commander (MC):

> The School of Medical Practitioners, Guam, shortly will be designated officially by the Navy as the School of Medical Assistants, Guam, in conformity with the recommendations of the Committee appointed at the Dec. 6, 1947 meeting of the Joint Committee for the Coordination of Medical Activities.

(The Committee mentioned by Commander Schultz consisted of Dr. Edward L. Bortz, President, and Dr. George F. Lull, Secretary of the American Medical Association, and Commander Schultz.) The Joint Committee expressed satisfaction with the proposed designation of the Guam school as reported by Commander Schultz.

THE GENERAL PRACTITIONER

Dr. Sensenich, member of the Subcommittee on the General Practitioner, presented information relative to a recent meeting of the Board of Trustees of the American Medical Association with officers and representatives of the American Academy of General Practice, which was organized at Atlantic City, N. J., in June 1947.

> The general practitioner is defined as "a licensed physician and surgeon who holds the degree of M.D., and who does not limit his practice exclusively to a particular field of medicine or surgery."
>
> The objects and purposes of the academy are: (1) to promote and maintain high standards of the general practice of medicine and surgery; (2) to encourage and assist young men and women in preparing, qualifying and establishing themselves in general practice; (3) to preserve the right of the general practitioner to engage in medical and surgical procedures for which he is qualified by training and experience; (4) to assist in providing postgraduate study courses for general practitioners, and to encourage and assist practicing physicians and surgeons in such training, and (5) to advance medical science and private and public health.
>
> Does the academy advocate that all general practitioners be permitted to practice medicine and perform surgery in all hospitals? No. The academy recommends that proper requirements be maintained for staff privileges in all hospitals; ... that hospital privileges be extended to all licensed physicians on the basis of competency. ... The academy endorses official actions taken by the American Medical Association, the American Board of Surgery and other interested organizations opposing any hospital regulations which confine staff membership or the right to perform certain medical and surgical procedures to specialists who have been certified by the respective specialist boards.
>
> Does the academy propose to establish a certifying board in general practice? No. In years to come a certifying board of general practitioners to examine candidates engaged in general practice may be feasible, but such is not the present intention of the academy. While the academy does not plan to conduct examinations of candidates for membership, membership for the general practitioner in the academy corresponds to a certification by a board for the specialist.
>
> There are approximately 135,000 members of the American Medical Association. Of these, approximately 40,000 are specialists. Thus there are nearly 100,000 general practitioners. It is hoped that eventually most of these will become affiliated with the American Academy of General Practice.

Dr. Bierring, also a member of the Subcommittee, discussed the subject. He observed that there is at least a tendency to feel that within the next ten years the practice of medicine and the offices of physicians will center more and more around a hospital, and that there will be a closer integration. He said: I feel that by establishing a special service for general medicine in a large general hospital, the participants will appreciate what a broad field they have before them for service to their patients and will feel that it is a better opportunity for them than if they confine themselves to some special field where they will be limited in their practice and limited, also, with respect to locations.

Dr. Fishbein stated that the Colorado experiment is only one of about thirty experiments now being made, and that he thought it would be a mistake to endorse any one of these experiments as ideal. He also thought that all of them should be watched and ought not to be discouraged. Dr. Fishbein continued: One thing which has been forgotten in these experimental plans is the great significance of the cost of transporting patients, which in many instances amounts to more than the entire medical bill.

It was the opinion of the Chairman that the Joint Committee for the Coordination of Medical Activities might "view with interest" all these experiments, and that out of them should come improvement in medical education and medical practice.

Dr. Anderson said: There is apparently a definite increase in the feeling of responsibility on the part of medical schools to interest and stimulate their students toward general practice. There is also apparently a definite increase of interest on the part of the students themselves. Several polls taken during the last year indicate that there is a reversal of the feeling of two to four years ago, when the great majority of students indicated desire to go into special fields of practice. I think that no less than forty to forty-five of the medical schools have some definite program under way to interest the students in this type of practice on the undergraduate level and some on the graduate level.

BIPARTISAN COMMITTEE ON REORGANIZATION OF FEDERAL AGENCIES

Miss Switzer submitted a report on the status of the Bipartisan Committee on Reorganization of Federal Agencies, of which Mr. Herbert Hoover is chairman.

NATIONAL HEALTH ASSEMBLY

The Chairman requested a discussion of the plans and purposes of the National Health Assembly called by the Federal Security Administrator, Mr. Oscar R. Ewing, to meet in Washington, D.C.

COOPERATIVE HEALTH EDUCATION PROGRAMS

Dr. Serles read a report prepared by Dr. Robert P. Fischelis, of the American Pharmaceutical Association, relative to encouraging the utilization of the pharmacies of the United States in the education of the public on health matters.

Each year the American Pharmaceutical Association would dedicate National Pharmacy Week to one of the broad public health programs. This year more than seventeen thousand pharmacies have responded, and difficulty in financing the supply of a sufficient number of displays to meet all requests is experienced.

In addition to the aid given the American Cancer Society through National Pharmacy Week, special assistance was provided the American Heart Association this year in its campaign to present forcefully to the attention of the public the necessity for early recognition and treatment of cardiovascular diseases. Thousands of displays were asked for by pharmacists, at the suggestion of the American Pharmaceutical Association, through a special bulletin issued to the members of State Pharmaceutical Associations.

Dr. Fishbein thought the material which the American Pharmaceutical Association is distributing for display in individual pharmacies represents a commendable effort in public health education supplementing that of medical schools and medical agencies. He moved that the Joint Committee for the Coordination of Medical Activities endorse it as a part of the great campaign for public education.

UNIFORM PHARMACY PRACTICE ACT

Dr. Serles presented a statement concerning the need for greater uniformity of the laws governing the practice of pharmacy in the several states.

The educational requirements and the procedure for licensure have attained a high degree of uniformity. The actual practice of the profession in the several states varies considerably. This affects not only the procedures followed by the pharmacist, but it likewise affects the practitioner of medicine and is ultimately reflected in the service to the patient. In only one instance of prescription practice are the procedures generally quite uniform, and that is the distribution of drugs under the Harrison Narcotic Act. In all other instances the establishment of the practice of pharmacy under the state pharmacy practice act has resulted in a wide variance of procedure for such important drugs as the barbiturates, the dangerous drugs, drugs not requiring a prescription, drugs dispensed by a physician, drugs dispensed in hospitals, drugs distributed by state boards of health and drugs distributed by mail order houses.

Dr. Serles read the proposed uniform pharmacy practice act and asked the support of the Joint Committee, saying that the American Pharmaceutical Association is desirous of securing the strongest support from all interested agencies. The Chairman wondered if the proposed law might not be so extensive that it could be attacked on the ground that it created a monopoly, and Dr. Serles replied that he thought not, that it has been carefully studied by the National Drug Trade Conference and that in the major part it simply defines the practice of pharmacy.

Dr. Fishbein moved that the Joint Committee for the Coordination of Medical Activities endorse the principle of a minimum standard and its uniform adoption throughout the nation for the practice of pharmacy under laws and regulations that will protect both the people and the pharmacist. The motion was seconded by Dr. Bierring and was adopted.

HOSPITAL SURVEY AND CONSTRUCTION ACT

Dr. Dearing reported that the House of Representatives has passed a deficiency appropriation of several million dollars. Thirty-six state plans covering three fourths of the states have now been approved. The total cost to the government is $63,000,000. One hundred and fifty individual projects have been approved, totaling $69,000,000 worth of construction. Two thirds of the money involved is nonfederal, one third federal. Presumably construction has actually started on some projects. It is possible that changes in the basic act to provide additional appropriation will be considered near the end of the period which the act covers. Congress has shown no disposition to hold back on the allocation as the projects have come in; the deficiency appropriation for this year is an indication of the trend.

OSTEOPATHS AND THE GOVERNMENT SERVICES

The Chairman asked Dr. Dearing to give the Joint Committee some information about the recent amendment of the Public Health Service Act, and Dr. Dearing replied as follows:

> Our so-called promotion bill to amend the Public Health Service Act was for the purpose of putting the promotion system in line with that of the armed services. An amendment was added, which we did not sponsor or request, which provides that "graduates of colleges of osteopathy whose graduates are eligible for licensure to practice medicine or osteopathy in a majority of the States of the United States, or approved by a body or bodies acceptable to the Administrator, shall be eligible subject to the other provisions of this Act, for appointment as commissioned medical officers in the Public Health Service."
>
> Much thought has been given to this problem. The basic law covering the Veterans Administration authorizes the appointment of osteopaths, and the Navy also has authorization for the appointment of osteopaths as medical officers, but there are certain limitations. Under this amendment, the Public Health Service has no such limitations. The utilization of the osteopaths, if they pass the examinations and are admitted, will be somewhat of a

> problem; two or three of our hospitals have indicated that they could use a properly trained man in the physical medicine departments. The Veterans Administration has one and is about to or just has employed another.

A motion was made by Dr. Fishbein that the Joint Committee for the Coordination of Medical Activities " view with alarm " the possibility of commissioning as medical officers in the U. S. Public Health Service persons without adequate knowledge or training in preventive medicine and public health. The motion was duly seconded and adopted.

OUTBREAKS OF ILLNESS AMONG THE NEWBORN IN HOSPITALS

Mr. Williamson was asked by the Chairman to present a brief statement on outbreaks of illness among the newborn in hospitals, a subject on which Mr. Graham Davis had requested discussion at the last meeting of the Joint Committee. Mr. Williamson's remarks were as follows:

> One approach that is being made to the problem is a basic study of the formula room, and it is expected that the committee having this in hand will make a report by September. Some radical changes probably will result from this study and improvements will ensue, probably in the simple things like the washing of bottles, and the space used.

IMPROVEMENT OF SURGICAL SERVICE IN HOSPITALS

The Chairman asked Dr. Fishbein to speak on the subject of improvement of surgical service in hospitals, which he did as follows:

> We have been working for some time on a proposal that there be published annually in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION a tabulation of the number and character of surgical operations and their general results. In the initial study, probably one hundred hospitals will be chosen at random and asked to keep records over a six month period of at least two surgical operations. The hospitals and the surgeons doing operations will be coded and the whole study carried out on an anonymous basis. If adequately conducted, the study should bring out a vast amount of important and controlled information as to the quality and the results of surgery in the hospitals over the country. It is conceivable that a study of this kind would result in a great improvement of surgical service and also might help to refute charges of unnecessary surgical procedures.

Dr. Coller said that the American College of Surgeons has been discussing the same thing and already has carried on studies of a similar nature. Dr. Henderson thought the project extremely worth while and moved that the Joint Committee for the Coordination of Medical Activities endorse it. The motion was seconded and adopted.

AMERICAN RED CROSS BLOOD BANK PROGRAM

Dr. Draper presented a statement to the effect that the first national blood center had its official opening at Rochester, N. Y., on January 12. On the following day this center was serving all the hospitals in the city and also the hospitals in the cities in the eleven surrounding counties. This is known as the Genesee Valley National Blood Center, and supplies the blood needs of more than a million persons. The physicians and hospitals in this area are pleased, and the program has the complete cooperation of the medical societies and all other agencies concerned.

The second national blood center was opened at Wichita, Kan., on January 14. It is a going concern at the present time and is supplying the blood requirements of all of the hospitals in Wichita in a satisfactory manner. The regional program is being expanded throughout the seven surrounding counties. There is complete cooperation on the part of all of the medical societies, physicians and hospitals throughout the area, all having expressed entire satisfaction with the program.

The third national blood center was opened at Atlanta, Ga., on February 17, There are forty-one participating chapters of the Red Cross in the counties surrounding Atlanta extending for a radius of 80 miles. At present the program is supplying the hospitals in Atlanta and the mobile operation is well under way. When in full operation this program will meet the hospital needs in all cities within the area and will meet the blood requirements of approximately 1,500,000 persons.

The fourth national blood center was opened at Stockton, Calif., on February 21. It serves the northern end of the San Joaquin Valley and supplies the blood requirements of approximately 500,000 persons. There is complete cooperation on the part of the medical societies and hospitals within the area, and all have expressed great satisfaction with the results which are being obtained.

A blood center was opened at Washington, D. C., on January 9 on a limited basis. It will become a part of the national program about May 1. At present it is supplying the needs of the veterans' hospital and other government hospitals in the District of Columbia, and also emergency service in all hospitals in the District of Columbia.

The national blood center at Louisville, Ky., is in the process of formation and will be in operation probably about May 15. It will serve the city of Louisville and fourteen surrounding counties in Kentucky and Indiana.

A national blood program center will be opened at San Jose, Calif., on May 1. It is being developed with the full cooperation of the local medical societies and all other agencies. It will supply the blood needs of more than 500,000 persons in the Santa Clara and Salinas Valleys and in Santa Cruz County.

The blood program of the state of Massachusetts became part of the National blood program on March 1. It serves the entire state of Massachusetts with the exception of Boston proper. A contract is in force with the state laboratories for the processing of blood collected from the various cities.

Dr. McIntire has held discussions with representatives of the Chicago Red Cross Chapter and its Medical Advisory Committee, with a view to starting a National Blood Program center in the autumn of this year.

After lengthy discussion, the Joint Committee voted to reaffirm its approval in principle of the Red Cross Blood Bank Program and authorized the earliest possible publication of the progress report presented by Dr. Draper.

RURAL MEDICAL SERVICE

Dr. Mulholland presented the following progress report:

> The third National Conference on Rural Health was held about a month ago. Preparation and planning for the Conference was participated in by the American Academy of Pediatrics, and the general theme of the program was the health status of the rural child. Also cooperating in the Conference were the National Cooperative Milk Producers Federation, the Farmers' Educational Cooperative Union, the National Grange and the American Farm Bureau Federation. More than five hundred persons were in attendance.
>
> One of the highlights of the Conference was the presentation by Dr. Maurice H. Friedman of his analysis of selective service statistics, in which

he shows that the draft rejectee figures are not a measure of the health of any community. We had at the Conference four young persons from rural areas who told us exactly what they thought about rural medical service and care. There was considerable discussion about nutrition, school lunches and child psychology. One of the main points brought out in the various papers and discussions was the need for more and better medical service in rural areas. Most of the efforts of the Committee on Rural Medical Service are in that direction, and we hope to have working for us a specialist who will be able to help the local people and show them how the needs can be met.

WORLD MEDICAL ASSOCIATION

Dr. Henderson presented a report on the present status of the World Medical Association.

A classification of Founder and Sustaining Member of the United States Committee has been established to include physicians, medical organizations allied to the medical profession, such as the American College of Surgeons and the American College of Physicians. The organizations will be requested to come in as Founder and Sustaining Members with a membership fee of $2,000 a year. The dues of the American Medical Association as a member of the World Medical Association probably will be more than double the dues of any other organization, the nearest being the British Medical Association. Most of the medical organizations of Europe are destitute and cannot supply funds. In addition to the dues paid to the World Medical Association, which are substantial, the American Medical Association has come in as a Founder and Sustaining Member of the United States Committee at $2,000 a year, and some other medical organizations have become Founder and Sustaining Members. Business firms serving or allied to the medical profession are asked to contribute to the United States Committee according to the size of their organizations. We have had quite a few contributions, ranging from $10,000 down to $100. Within the next few days we expect to send out a letter to a selected number of physicians over the country, about 10,000, requesting them to come in as Founder and Sustaining Members with a membership fee of $10 a year. There have been quite a number of physicians who have already come in and subscribed under that provision. Some laymen will join under the same category at $10 a year.

The delegation from the United States has reason to believe that the World Medical Association is a wholly worth while project. It is going to take money. The United States Committee has undertaken to pay all the expense of the headquarters office, which will be located in New York. In addition to paying all the expenses of the office and that involved in the publication of a bulletin or journal, we shall have to pay the expenses of the officers and Council members when they attend a meeting, which probably will be twice a year. It was voted in Paris, France, that the annual assembly this year would be held in Prague, Czechoslovakia, but since then there have been developments which may make it impossible to go to Prague. We are hoping that at the meeting of the Council in April the location for the assembly will be changed to some other country, and some of us hope it will be held in Geneva, Switzerland. Incidentally, checks in support of this enterprise can be made payable to the World Medical Association, United States Committee.

INFORMATIONAL REPORTS

Graduate Education for Medical Officers in the European Theater of Operations

The Chairman inquired of General Armstrong concerning the development of the educational plan for medical officers in European service, and the general stated that matters are going along in a most satisfactory manner and that the response of American physicians volunteering to spend a certain length of time in Europe for the purpose has been gratifying.

TIME AND PLACE OF NEXT MEETING

It was decided to hold the next meeting of the Joint Committee for the Coordination of Medical Activities at American Medical Association Headquarters in Chicago on Saturday, June 5, 1948.

Washington Letter

(From a Special Correspondent)

May 13, 1948.

Ewing Drafting Ten Year Health Plan for Nation

Federal Security Administrator Oscar R. Ewing announced that an outline of a ten year national health plan requested by President Truman last January would be ready within a few weeks. He made this announcement following the wind-up of the National Health Assembly here. He is studying the reports of the fourteen conference sections to obtain material for the program, but emphasized that he will take full responsibility for whatever plan is submitted to Mr. Truman. Mr. Ewing declared that the assembly had been " unbelievably successful." He said the exchange of opinions between lay and professional people would produce public opinion to support a health program.

Early Action on World Health Organization Expected

The House of Representatives is expected to take action soon on legislation to permit the United States to join the World Health Organization. Speaker of the House Joseph W. Martin Jr., Republican of Massachusetts, expressed the hope that the House Rules Committee, which has had the bill tied up for months, would report on the bill in the immediate future. Representative Leo Allen, Republican of Illinois, Rules Committee chairman, said that he knew of no change in the opinion of members who had tabled the measure early in March, but it was reported elsewhere that a sufficient number of members have swung over to assure passage. The State Department has favored early action so that the United States could take part in the meeting of the World Health Organization in Geneva, Switzerland, in June.

Federal Security Agency Voted Operating Funds

The House has voted and sent on to the Senate a bill appropriating $969,050,000 in operating funds for the Federal Security Agency for the fiscal year beginning May 1. The measure is $20,673,000 below the total requested by the agency for its activities, which include the U.S. Public Health Service and the Food and Drug Administration. The bill also provides $1,000,000 for a national campaign to train dentists in the use of sodium fluoride to check dental decay.

House Approves Bill for Research on Artificial Limbs

The House of Representatives has passed and sent to the Senate a bill to give the Veterans Administration $1,000,000 annually to continue its research on artificial limbs. Results of the studies would be available to public rehabilitation agencies as well as the Veterans Administration under the provisions of the bill.

Antitrust Suits Against Optical Dealers and Eye Doctors

Attorney General Tom Clark announced that he has filed four antitrust suits against a group of Midwestern optical wholesalers and a long list of eye doctors. The complaints allege that the companies turned over to the eye doctors about half of the fees charged patients for filling prescriptions for glasses. The suits seek to halt payment of such rebates or prevent their acceptance by doctors. Assistant Attorney General John F. Sonnett, head of antitrust prosecutions, said it was hoped that the actions would cut substantially the prices of eye glasses to the public.

ARMY

MORE RESERVE OFFICERS ON ACTIVE DUTY

The Surgeon General announced April 12 that authority had been granted to place three hundred medical service reserve officers on extended active duty. Reserve officers who volunteer may be assigned to duty in all four sections of the corps according to their qualifications. The greatest need is in the medical allied science section, which includes personnel trained in biochemistry, nutrition, physiology, serology and psychology.

The Regular Army Medical Service Corps has an authorized officer strength of one thousand and twenty-two. Vacancies in this corps will be filled through the medium of competitive tours of active duty for reserve officers. Qualified men interested in an Army career may apply for reserve commissions. Plans are being made to expand the graduate training program for Regular Army Medical Corps Officers, including training at civilian institutions in a wide variety of subjects. Many leading universities are cooperating in this training program.

The Surgeon General has announced that the following medical reserve officers have entered on tours of active duty with the Army: Colonels Charles Holmes, Seattle, and Norman W. Elton, Newton Highlands, Mass.; Lieut. Col. Henry C. Dorris, Winona, Miss.; Majors Lester S. Grieder, Dauphin, Pa., and Julian C. Kennedy, Indianapolis; Captains Timothy A. Callahan, Baltimore; William B. McLaughlin, West Orange, N.J.; Antonio S. Medinga, Box 177, Mato Rey, Puerto Rico; Charles Norman Moss, Boston; William Stone, San Pedro, Calif., and Ernest Allan Brav, Louisville, Ky., and Lieut. Harry Vernon Pifer Jr., New York.

DAYS LOST DUE TO SICKNESS AND INJURY

Lieut. Col. Alfred P. Thom, M.C., chief, Development Branch, Medical Research and Development Board, Office of the Surgeon General, Composite Group, Bridgeport and Hartford, Conn., March 10-11, said that: "During the last war, wounded, died of wounds, killed in action and prisoners of war were responsible for about one third of the permanent losses of effectives that occurred, the remainder being largely due to sickness and injury. About 15,000,000 men were hospitalized for disease between Jan. 1, 1942 and Aug. 31, 1945, and 2,000,000 men were hospitalized for injury. With manpower probably the most critical item in our war effort, it is estimated that the average loss of manpower through hospitalization and quarters amounted to an average of over 309,000 men per day throughout the war period, and that an additional 773,000 directly or indirectly were required for patient care. It is thus apparent that, with about 10,000,000 men mobilized by the Army, at least 1 out of 10 men was totally unavailable for tactical or other military employment, because of either being a patient, or through being required for patient care. This condition exists in spite of the best medical service probably ever possessed by an Army, and with the best health, disease and injury treatment record of any Army in History."

MEDICAL SERVICE IN CANAL ZONE

Members of the Committee on Medical and Hospital Services of the Armed Forces, appointed by the Secretary of Defense, recently visited the Panama Canal Zone. The members who went there are the Surgeon General of the Army, Major Gen. Raymond W. Bliss, the Surgeon General of the Navy, Rear Admiral Clifford A. Swanson, Col. John Hargreaves, M.C., representing the Air Surgeon, and Major Gen. Malcolm C. Grow, M.C. These representatives agreed on the approach to medical problems related to the Canal Zone. This area is unique in having an over-all medical problem affecting the Army, Navy, Air Force and Panama Canal organization. Medical services there can be coordinated for the best interests of all these elements. There is unanimity of purpose and action to demonstrate to the world that the highest health standards can be maintained in a tropical area. The Committee on Medical and Hospital Services is not empowered to take direct action and is obligated to make recommendations to the Secretary of Defense.

PERSONAL

Major Frank B. Rogers, M.C., has been appointed special assistant to the director of the Army Medical Library. Major Rogers graduated at Yale University and the Ohio State University Medical School and entered the military service in 1943. After serving in the Pacific area during the war and in Japan, he served briefly at Walter Reed General Hospital before coming to the library.

NAVY

NEW REGULAR OFFICERS

The following graduates of the Navy's V-12 program have accepted appointments in the medical corps of the regular Navy: Lieuts. (jg) John W. Howard, Argyle, N.Y.; Thomas W. Stewart, Pelham, N.Y.; Louis Sussman, New York; Albert E. Thielen, Cincinnati, and Richard K. Williams, Richmond, Va.

Comdrs. Warner D. Bundens Jr., Mickleton, N.J.; Broor A. Johnson, Rita, N. Mex., and Lieut. Comdr. John D. Boland, Sterling, Ill., of the naval reserve, have accepted appointments in the regular Navy Medical Corps.

The following physicians have accepted appointment in the medical corps of the Regular Navy: Lieut. (jg) Charles E. Boonstra, Lafayette, Ind., graduate of the University of Indiana School of Medicine under the V-12 program; Lieut. (jg) Robert E. Baker, Detroit, formerly medical corps reserve officer; Lieut. Ralph L. Vasa of Brooklyn, formerly in the reserve corps, and Lieut. (jg) Leonard J. Raider, Philadelphia, a graduate of the University of Pittsburgh School of Medicine.

PERSONALS

Capt. Eric G. Hakansson, commandant, Naval Medical Research Institute, Bethesda, Md., has been ordered to the Naval Hospital for treatment and has been relieved as commandant of the Research Institute by Capt. Charles F. Behrens, formerly chief of the Atomic Defense Division of the Bureau of Medicine and Surgery.

Rear Admiral J. C. Adams (MC) was recently honored by appointment to Honorary Commander of the Most Excellent Order of the British Empire in recognition of his contribution to the allied war effort while serving as chief of the Division of Aviation Medicine.

OFFICERS REQUEST POSTGRADUATE TRAINING

The advisory Board of the Bureau of Medicine and Surgery on March 24 approved the requests for postgraduate training of the following medical officers:

Capt. Charles L. Ferguson, Waynesville, N.C., course in internal medicine, University of Pennsylvania Graduate School of Medicine.
Capt. Edward S. Lowe, Long Beach, Calif., course in surgical anatomy, Cornell University Medical College.
Comdr. Peter J. Giotta, Bronx, N.Y., residency in ophthalmology, Naval Hospital, St. Albans, L.I., N.Y.
Comdr. Peter P. Machung, Manticoke, Pa., extension course of instruction in neurology, Jefferson Hospital, Philadelphia.
Comdr. Waite R. Griswold, Indianapolis, fellowship, Illinois Psychiatric Institute.
Comdr. William S. Baker Jr., Detroit, second year of residency in obstetrics and gynecology, Naval Hospital, San Diego, Calif.
Comdr. Ross P. Black, Amarillo, Texas, course in basic science in urology, University of Pennsylvania.
Comdr. Nelse O. Olson of San Francisco, course in ophthalmology, Washington University, St. Louis.
Lieut. Comdr. August R. Buerkle, Pittsburgh, two year residency in orthopedic surgery, New York Orthopedic Dispensary and Hospital, Columbia University.
Lieut. Comdr. Wilbur S. Lummis, Newark, N.J., residency in internal medicine at a Naval Hospital.
Lieut. Don L. Andrus, Arlington, Va., course in surgery, University of Pennsylvania Graduate School of Medicine.
Lieut. John W. Trenton, Petersburg, W. Va., residency in general surgery, Naval Hospital, St. Albans, L.I., N.Y.
Lieut. (jg) James F. Berry, Alexandria, Va., residency in internal medicine, Naval Hospital, Bethesda, Md.
Lieut. (jg) John W. Flynn, Washington, D.C., residency in internal medicine, Naval Hospital, Bethesda, Md.
Lieut. (jg) Martin Koeck III, Chicago, residency in surgery, Naval Hospital, Long Beach, Calif.
Lieut. (jg) Bruce F. Baisch, Little Valley, N.Y., residency in surgery, Naval Hospital, Bethesda, Md.
Lieut. (jg) Livius L. Lankford, Cisco, Texas, residency in orthopedic surgery, Naval Hospital, Philadelphia.
Lieut. (jg) Walter G. Leonard, Newton, Mass., residency in obstetrics and gynecology, Naval Hospital, Chelsea, Mass.

CORRECTION

Officers Request Graduate Training.--In the list of Naval medical officers under this head in THE JOURNAL, April 17, page 1054, Comdr. James W. Gustin Jr. should have been listed as taking a residency in surgery at the Naval Hospital, Long Beach, Calif., instead of at the Naval Hospital, St. Albans, N.Y.

VETERANS ADMINISTRATION

NUMBER OF PATIENTS AT ALL TIME HIGH

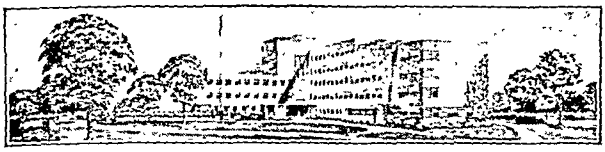
The number of veteran-patients hospitalized by the Veterans Administration reached the all time high of 109,325 on March 1, a gain of 1,874 over the previous peak of 107,451 on February 1. The number of veterans awaiting admission to hospitals also increased during February for the second straight month. The total on March 1 was 21,144, compared with 19,505 at the end of January and 4,329 in July 1945. The February increase was caused almost entirely by applications from veterans with nonservice-connected disabilities. Veterans Administration must provide medical care for veterans with service-connected ailments. Veterans with nonservice-connected disabilities may be hospitalized if beds are available and if they affirm that they cannot afford to pay for treatment elsewhere. Requests from veterans for physical examinations also reached an all time high on February 1 with a total of 256,000.

HOSPITAL AT OKLAHOMA CITY

President Truman and the Federal Board of Hospitalization have approved the acquisition of 9 acres of land in Oklahoma City for the site for a thousand bed Veterans Administration general hospital. The property adjoins Oklahoma University School of Medicine and the university hospital group. Locating the hospital on this site is in keeping with the Veteran Administration's policy of building large general hospitals close to medical schools and medical centers, so that the services of local medical personnel as residents, consultants and attendants may be available. All but three small parcels of land on the site are owned by the state of Oklahoma. The state's Board of Public Affairs has agreed to transfer its property, along with two of the privately owned lots on which it has options to purchase, to the Veterans Administration. The third privately owned lot will be acquired by the Veterans Administration.

HOSPITAL IN FORT WAYNE, IND.

On Sunday, February 29, ground-breaking ceremonies were conducted for the new Fort Wayne veterans' hospital, the construction of which is expected to start soon. The site of the two hundred bed general hospital is a 26 acre tract adjacent to the site of the new Methodist hospital which is to be built in the near future. The main building of the veterans' hospital will be a five story concrete structure with exterior walls of brick. There will be also recreational facilities for patients, radios with head phones or special pillow receivers for each bed, an auditorium, classrooms, shops, libraries and other facilities.



VETERANS ADMINISTRATION HOSPITAL AT FORT WAYNE, IND.

SPECIAL SPEECH TRAINING

About 100,000 veterans of World War II who suffered speech impairments in service may be eligible for special restorative training, the Veterans Administration announced. This training, which is available for veterans under Public Law 16, generally will be offered in speech clinics of medical centers, hospitals, colleges and public schools; in private speech correction clinics, in curative workshops and in speech clinics operating as adjuncts to mental hygiene clinics. The training is available when the speech impairment interferes with the employment of the veteran, when his mental and physical condition is such that the training may be pursued satisfactorily and when there is good promise that special training will overcome or reduce significantly the veteran's handicap.

PHYSICIANS SEPARATED FROM SERVICE

MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

NAME	CITY & STATE
Adney, F.B	Indianapolis, Ind.
Amateau, M	New York, N.Y.
Amsterdam, B	Newark, N.J.
Anderson, H.J	North Branch, Minn.
Anderson, R.M	Charleston, S.C.
Armstrong, C.D	San Jose, Calif.
Arnett, R.K	Lufkin, Tex.
Baggett, J.W	Lillington, N.C.
Baker, E.A	Winters, Calif.
Ballas, W.A	Dormont, Pa.
Banister, G.B	Port Chester, N.Y.
Baras, I	Brooklyn, N.Y.
Barelli, P.A	Coffeyville, Kans.
Barnaby, G.A	Simsbury, Conn.
Baron, P	Rochester, N.Y.
Bartfeld, H	New York, N.Y.
Bauman, T.E	Salt Lake City, Utah
Beauchamp, L.A	Rutland, Vt.
Beighley, H.V	Struthers, Ohio
Berg, A.M	Brooklyn, N.Y.
Bergman, P.S	New Rochelle, N.Y.
Beridon, L.F	Hamburg, La.
Berkeley, W.T. Jr	Washington, D.C.
Bevil, H.H	Beaumont, Tex.
Black, J.M	Seymour, Ind.
Blankenship, H.D. Jr	Jellico, Tenn.
Blazek, C.J. Jr	New York, N.Y.
Bodnar, L.M	Chicago, Ill.
Bokovoy, A.P	Los Angeles, Calif.
Bouchard, G.J	Manchester, N.H.
Boyer, R.S	Philadelphia, Pa.
Bradford, B.K	Bogota, N.J.
Brandt, I.K	New York, N.Y.
Brennan, J.F	Lakewood, O.
Brown, A.B. Jr	Crockett, Tex.
Bucher, R.M	Ridley Park, Pa.
Buckles, D.L	Hartford City, Ind.
Buckman, R.F	Brooklyn, N.Y.
Bullard, A.L	Statesville, N.C.
Bunker, R.J	Caguas, P.R.
Burdeaux, B.D. Jr	Huntsville, Tex.
Burns, T.J	Salt Lake City, Utah
Bush, R.C	West Hartford, Conn.
Byers, R.O	Glenshaw, Pa.
Calvelli, G.J. Jr	New York, N.Y.
Camp, H.W. Jr	Warren, O.
Camp, R.J	Aurora, Nebr.
Capozzella, H.F	Utica, N.Y.
Caputi, A.P	Newport, R.I.
Carlson, K.E	San Francisco, Calif.
Carter, S.H	The Plains, Va.
Castleman, L	Brooklyn, N.Y.
Chamness, J.T	Carlinville, Ill.
Chapel, J.P	Houston, Tex.
Chapman, R.J	Skaneateles, N.Y.
Chappell, E.R	Minden, Nebr.
Chillag, E.R	Buffalo, N.Y.
Churg, J	New York, N.Y.
Civello, A.A	San Francisco, Calif.
Clardy, E.K	Hot Springs, Ark.
Clarkin, A.J. Jr	Warwick, R.I.
Clayton, M.L	Du Bois, Idaho
Clement, D.M	Ann Arbor, Mich.
Cohen, R.B	Bronx, N.Y.
Cole, J.W	Eugene, Ore.
Coleman, F.B	Indianapolis, Ind.
Colwell, B.D	Monango, N.D.
Cortese, P.T	Ware, Pa.
Costello, J.L	Rutland, Vt.
Cotten, H.B	Birmingham, Ala.
Cotton, R.T	Manhattan, Kans.
Crispell, L.S	Bridgeport, Conn.
Cronk, G.E	Tulsa, Okla.
Croom, W.C. Jr	Jacksonville, Fla.
Crume, T.J. Jr	Louisville, Ky.
Curtis, R.M	Jefferson City, Mo.
Dabbs, O.D. Jr	Gulfport, Miss.
Daniel, A.P	Tiffin, O.
D'Aurio, T.F	Greene Island, N.Y.
Davidson, A	Burlington, Vt.
Davidson, J.K. III	Lithonia, Ga.
Davis, J.E	Oklahoma City, Okla.
Davis, J.W. Jr	Edenton, N.C.
Davis, W.A	Pikeville, Ky.
Day, R.McC	Summit, N.J.
Decker, A.M. Jr	Brockport, N.Y.
Deininger, J.V	San Francisco, Calif.
Dickinson, R.B	Horatio, Ark.
Doyle, B.J	La Salle, Ill.
Dugger, G.S	Vilas, N.C.
Ecker, J.A	Cleveland, O.
Edmunds, D.G	Salt Lake City, Utah
Eig, B.H	Washington, D.C.
Ellis, W.P. Jr	Laurel, Del.
Ellison, R.S	Mansfield, O.
Epstein, I	Washington, D.C.
Erb, E.R	Port Washington, N.Y.
Fagan, P.T	Terre Haute, Ind.
Fairall, E.R	Hines, Ill.
Fawcett, R.A	Wheeling, W. Va.
Fedullo, A.J	Hazleton, Pa.
Fisher, R.M	Chicago, Ill.
Fitzgerald, P.J	Concord, N.H.
Fitzgerald, R.P	New York, N.Y.
Fitzpatrick, M.J	Balboa, Canal Zone
Flinchum, D	Willis, Va.
Flinkman, L	Philadelphia, Pa.
Flynn, R.E	Albia, Ia.
Fountain, E.McA	Houston, Tex.
Freedman, A.D	Albany, N.Y.
Fulchino, H.L	Revere, Mass.
Fuller, W.W	Williamsburg, Va.
Fung, G.D	San Francisco, Calif.
Galante, M	New York, N.Y.
Gamble, T.J. Jr	Los Angeles, Calif.
Geppert, T.V	Vermillion, S.D.
Gilboy, J.T. Jr	Youngstown, O.
Goldstone, S.B	Olyphant, Pa.
Graham, L.S. Jr	Pittsburgh, Pa.
Graub, M	Philadelphia, Pa.
Greenhouse, H.R	New York, N.Y.
Griest, W.D	Cincinnati, O.
Grima, J.A	Warren, O.
Guthrie, W.W	Huntington, W. Va.
Haas, H.S	San Francisco, Calif.
Haddy, F.J	Hollywood, Calif.
Haley, F.J	Buffalo, N.Y.
Hamilton, A	Yoakum, Tex.
Hartman, M.A	Minneapolis, Minn.
Hendin, A	St. Louis, Mo.
Hennessy, J.F	Bayonne, N.J.
Hinke, D.H	Madison, Wis.
Holt, C.Z	Gruver, Tex.
Horvath, C.N	Parma, O.
Howell, H.P	Dayton, O.
Howland, W.S	Wayne, Pa.
Huddleston, W.J	Huntington, W. Va.
Huizenga, K.A	Philadelphia, Pa.
Humphreys, W.F. Jr	Sycamore, Ga.
Hurd, J.B	Evanston, Ill.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

State Medical Elections.—At the annual meeting of the Medical Association of the State of Alabama in Mobile, April 15-17, Dr. J. Paul Jones, Camden, was elected president. Dr. Douglas L. Cannon, Montgomery, continues as secretary. The next annual meeting will be in Montgomery April 19-21, 1949.

Narcotic Violations.—The Bureau of Narcotics, Washington, D. C., has reported that two Alabama physicians pleaded guilty at Birmingham to information charging violation of the federal narcotic law. On February 27 Dr. William L. Drake, Fairfield, was fined $1,000 and placed on probation for five years, and on March 26 Dr. Robert B. Pryor, Mulga, was fined $2,000 and placed on probation for a period of three years.

CALIFORNIA

Society News.—The Los Angeles Society of Ophthalmology and Otolaryngology has elected Dr. Colby Hall, president, and Dr. Warren A. Wilson, secretary-treasurer.

Mental Health Institute.—A pilot institute on mental health for public health officers will be held in Berkeley July 5-18 under the auspices of the state department of public health and Commonwealth Fund. Lectures, seminars and supervised public health clinical experience in health department activities of the East San Francisco Bay region make up the program. Information may be obtained from the Director, California State Department of Public Health, San Francisco.

COLORADO

Rocky Mountain Cancer Conference.— The second Rocky Mountain Cancer Conference, sponsored by the Colorado State Medical Society, Rocky Mountain Cancer Foundation and Colorado Division of the American Cancer Society will be held at the Shirley-Savoy Hotel, Denver, July 14-15. Courses are designed particularly for the general practitioner. Among the speakers will be Fred W. Rankin, Lexington, Ky., on the colon and rectum; Herman L. Kretschmer, Chicago, urinary tract; Morris K. Barrett, Bethesda, Md., gastrointestinal tract; Alfred W. Adson, Rochester, Minn., brain and nervous system; Cly H. Hatcher, Chicago, bone; E. W. Alton Ochsner, New Orleans, lung; John H. Lawrence, Berkeley, Calif., isotopes; Richard H. Sweet, Boston, esophagus; John W. Budd, Los Angeles, laboratory diagnosis, and Archie C. Sudan, Denver, general practice. There is no registration fee as the conference is financed by contributed funds, mostly through the American Cancer Society.

FLORIDA

Personal.--Jesse Meuse, who has had many years of experience in the field of public health and teaching in public schools, has been appointed Negro health educator for the Florida State Board of Health. As a member of the division of health information he will work with various groups in the promotion of better health among the Negro population of the state.

State Medical Election.—Dr. Joseph S. Stewart, Miami, was installed as president of the Florida Medical Association at its annual meeting in St. Augustine April 11-14, and Dr. Walter C. Payne, Pensacola, was named president-elect. Dr. Robert B. McIver, Jacksonville, was reelected secretary-treasurer. The 1949 convention will be held at the Belleview Biltmore Hotel at Belleview.

Mobile Food Handlers School.--The Florida Food Handlers School program, which began in November 1947, is turning out about six hundred certified food handlers a month. Persons attending the mobile school must complete six hours' attendance before they receive their certificate as instructed food handlers. Thus far total attendance has been nearly 9,000. The school is a joint project of the Florida State Board of Health, Florida Hotel Commission and Florida Restaurant Association.

ILLINOIS

Dr. Huddleson Receives Bacteriologists' Award.—The Society of Illinois Bacteriologists at its spring meeting April 30 heard its first annual award lectureship delivered by I. Forest Huddleson, Ph.D., East Lansing, Mich., on "In Vitro and in Vivo Effect of Sulfadiazine and Normal Serum on the Brucella Antibody-Complement System." Dr. Huddleson was given the first annual award of the society for outstanding contributions to the science of bacteriology.

County Society Lectures.-- Lectures arranged through the Scientific Service Committee of the Illinois State Medical Society include:

May 20, Harry H. Boyle, Chicago, Effingham County Medical Society, Effingham, Nephritis in Childhood.

May 27, Franklin J. Corper, Chicago, Will-Grundy County Medical Society, Joliet, Infant Feeding.

May 28, Eugene L. Walsh, Chicago, McDonough County Medical Society, Bushnell, Chronic Bronchitis.

June 1, Leo K. Campbell, Chicago, Vermilion County Medical Society, Management of Diabetes Mellitus Complicated by Surgical and Obstetric Emergencies.

Chicago

Personal.--Adaline C. Hayden, formerly executive secretary of the American Association of Medical Record Librarians, has joined the staff at headquarters of the American Medical Association as associate editor of the Standard Nomenclature of Diseases and Standard Nomenclature of Operations.

Medical Society Sponsors Two Graduate Courses.—The Chicago Medical Society will sponsor two postgraduate courses in Thorne Hall on the Northwestern University Medical School campus this fall. A course in hematology and neurology will be given September 13-18 and one on cardiovascular and respiratory diseases September 20-25, with authorities from various parts of the United States teaching. Enrolment is limited to one hundred for each course. Applications may be sent to the office of the Chicago Medical Society, 30 North Michigan Avenue, Chicago 2.

County Hospital Appointments.—Dr. Oscar Felsenfeld, formerly of the Mount Sinai Medical Research Foundation, Chicago, has been appointed director of bacteriology at Cook County Hospital. Dr. Felsenfeld has just returned from the Caribbean area, where he spent seven months in a study of intestinal infections. He was stationed in San Juan, Puerto Rico. Miss Viola Mae Young, M.S., who has been working on parasitology at the School of Tropical Medicine at San Juan, Puerto Rico, has been appointed parasitologist. This position was recently created by the Board of County Commissioners.

Tuberculosis Centers.--Eleven of Chicago's seventy-five community areas contributed more than half the 4,296 cases of tuberculosis reported last year to the city health department. Dr. Earl E. Kleinschmidt, director of the Tuberculosis Institute of Chicago and Cook County, said that in addition to the cases reported there were about 10,000 Chicagoans who were infected with the disease during the year. The area from which the most cases were reported, 532, or 12.4% of the city's total, is on the near west side bounded by Kinzie and Sixteenth Streets, from the river west to Rockwell Street. The second ranking area with 354 cases is bounded by Thirty-Ninth and Fifty-First Streets, Cottage Grove Avenue, and the tracks of the Rock Island Railroad.

INDIANA

Resigns as Treasurer at Ninety.--Dr. Charles Hupe, aged 90, has resigned as treasurer of the Tippecanoe County Medical Society, Lafayette, after serving forty-six years in that capacity. Dr. Hupe, who has practiced medicine for sixty-four years, attends nearly all the meetings of the county medical society.

Centennial Celebration.--The council of the Indiana State Medical Association has selected Sept. 26-29, 1949 as dates for the Centennial Celebration of the association. The meeting will be held at Indianapolis, and one feature will be a "History of the Indiana State Medical Association" being prepared under direction of Dr. Charles N. Combs, Terre Haute, and Dr. Edgar F. Kiser, Indianapolis.

IOWA

Courses in Speech and Hearing.--The State University of Iowa College of Medicine, Iowa City, will offer two special courses on conservation of hearing during the 1948 summer session. The first, a four week intensive course in audiometry and the fitting of hearing aids, open to any one who can meet college entrance requirements, will run from June 21 to July 17. The second, an advanced seminar open to graduate students who have completed a first course in audiometry or who have had experience in public school or clinical testing, runs for eight weeks beginning June 9. In addition, a series of four lectures and round table discussions will be presented.

LOUISIANA

University News.--Drs. Carl Merrill Whorton and Frank C. Womack will join the faculty of the Louisiana State University School of Medicine, New Orleans, July 1 as assistant professors of pathology. Dr. Whorton is at present associated with the Mallory Institute of Pathology at Boston City Hospital and is on the staff of Tufts College Medical School. He was graduated at Vanderbilt University School of Medicine, Nashville, Tenn., 1940. Dr. Womack is an instructor in pathology at the Vanderbilt University School of Medicine, Nashville, Tenn. He received his M.D. at Vanderbilt in 1941 and served in the Navy during the war. A grant of $15,364 has been received from the War Department for continuation of studies on bacitracin in the department of surgery. The investigation was inaugurated on July 1, 1947 on a previous grant of $15,222 from the same source. The National Cancer Institute, U. S. Public Health Service, has awarded to the Louisiana State University School of Medicine a grant of $19,941 effective July 1, 1948 for development of the teaching and research programs in cancer. Dr. Walter J. Burdette, assistant professor of surgery, has been designated coordinator of the cancer program.

MASSACHUSETTS

Annual State Medical Meeting.--The annual meeting of the Massachusetts Medical Society will be held May 25-27 at the Hotel Statler, Boston, under the presidency of Dr. Edward P. Bagg, Holyoke. Guest speakers at the general sessions include:

Sumner L. Koch, Michael L. Mason and Harvey S. Allen, all of Chicago, Purposeful Splinting Following Injuries to the Hand.
Norman H. Jolliffe, New York, Nutrition in the Practice of Medicine.
Sir Reginald Watson-Jones, London, England, Significance of Rehabilitation in Medicine.
Robert B. Lawson, Winston-Salem, N.C., Recent Concepts on the Spread and Treatment of Poliomyelitis.
William S. Stone, M.C., U.S.A., Washington, D.C., Military Medical Preparations for the Future.
J. Rudolph Jaeger, Philadelphia, Subdural Hematoma.
Meyer Saklad, Providence, R.I., Operative Morbidity--Whose Responsibility?
Inglis F. Frost, New York, Endometriosis.
Eugene F. Traub, Burlington, Vt., Cutaneous Malignancies and Nevi.
Emery A. Rovenstine, New York, Management of Surgical Pain.
Hon. Forrest A. Harness, Kokomo, Ind., Government Propaganda and Socialized Medicine.

Guest speakers for the symposium on Liver Diseases Wednesday afternoon will be:

Henry G. Kunkel, New York, Liver Function Tests.
John R. Neefe, Philadelphia, Viral Hepatitis.
Stanley E. Bradley, New York, Variations in Hepatic Blood Flow.

The annual oration will be delivered by Dr. Allen S. Johnson, Springfield, Tuesday on "Responsibility of Medicine in the Propagation of Poor Protoplasm." The Shattuck Lecture will be given by Dr. C. Stuart Welch, Boston, on "Surgery in the Aged," on Tuesday evening at 8 p.m.

The guest speaker at the annual dinner Wednesday at 7 p.m. will be Mary Ellen Chase, Ph.D., Northampton, whose subject will be "The Country Doctor on the Maine Coast."

MICHIGAN

Hearing Testing Trailer.--The Michigan Department of Health has equipped a trailer to test hearing for use in its Hearing Conservation Program to school children in rural areas of the state. The 21 foot trailer has two rooms, one for controls and the other soundproofed for testing. More than 250,000 Michigan children have been tested for hearing loss under the Hearing Conservation Program since it was begun in 1942.

MINNESOTA

Chest X-Ray Survey in St. Paul.--During the chest x-ray survey carried out in St. Paul between October 22 and December 13, 1947, 694 cases of tuberculosis were discovered among 129,401 persons examined. The survey was conducted by the U. S. Public Health Service. St. Paul was the second of ninety-two cities of 800,000 or more population to take advantage of the offer. Twelve x-ray units were brought to St. Paul by the U. S. Public Health Service. Of patients whose tuberculosis was discovered by the roentgen examination and laboratory follow-up, 80 per cent were in the early stages of the disease.

Annual State Medical Meeting.--The Minnesota State Medical Association will meet in annual session at the Minneapolis Auditorium, Minneapolis, June 7-9, under the presidency of Dr. Archibald C. Cardle. A clinical-pathologic conference on cardiovascular-renal diseases and two panel discussions make up the opening general session program. The Russell D. Carman Memorial Lecture will be given by Dr. Paul C. Hodges, Chicago, on "The Role of X-Ray Pelvimetry in Obstetrics" Monday afternoon. The clinical-pathologic conference on Tuesday will be on acute abdominal pain, followed by panel discussions on nutrition in surgery and antibiotics. The Pediatrics Lecture on "St. Louis Encephalitis" will be delivered by Russell J. Blattner, Houston, Texas. On Wednesday's program there are a clinical-pathologic conference on uterine bleeding and the Arthur H. Sanford Lecture in Pathology by Benjamin J. Clawson, Minneapolis, on "Rheumatic and Bacterial Endocarditis." The general sessions will conclude with a public health meeting; among the speakers will be Senator Joseph H. Ball, on "National Health Legislation"; Robert L. Novy, Detroit, "Budgeting for Health Care," and Dr. Morris Fishbein, Editor of THE JOURNAL, on "Teamwork in the Conservation of Human Resources." A series of twenty-one round table discussions, each limited to forty, have been arranged, and scientific motion pictures will be shown each day. The annual dinner will be held at 7 p.m., June 8. The Physicians' First Annual Hobby Show will be held at the auditorium all during the convention. The Woman's Auxiliary will meet in conjunction with the state association.

NEW JERSEY

Research on Cell Growth.--Two recent grants totaling $71,450 from the New Jersey Division of the American Cancer Society, Inc., will be used at Princeton University, department of biology, Princeton, to conduct research on cell growth.

Personal.--Dr. William C. Williams, Rutherford, has been awarded the Russell Loines Memorial Award for Poetry of the National Institute of Arts and Letters. The award of $1,000 will be presented May 21 at the Academy Auditorium in New York. Dr. Williams, according to the *New York Times*, was recently appointed consultant of poetry in English by the Library of Congress.

NEW YORK

Receives Kaiser Medal.--The 1948 Albert David Kaiser Medal for outstanding medical service was awarded to Dr. John Aikman, assistant professor of pediatrics, University of Rochester School of Medicine and Dentistry, at a meeting of the Rochester Academy of Medicine May 4. Dr. Aikman has been in practice in Rochester for more than thirty years. He formerly served as chairman of the Section on Pediatrics of the American Medical Association.

Institute on Diarrhea of Newborn.—A regional Institute on Diarrhea of the Newborn will be held in the Buffalo Children's Hospital, Buffalo, May 24, 10:30 a.m. Sponsored by the Medical Society of the State of New York and the New York State Department of Health, the institute will serve the counties of Erie, Niagara, Chautauqua, Genesee and Wyoming. Hospital administrators, obstetricians and pediatricians, obstetric and pediatric nurses, laboratory directors and full time public health officers are invited to attend.

New York City

Harvey Lecture.—Dr. Frank A. Beach, professor of psychology, Yale University School of Medicine, New Haven, Conn., will deliver the eighth Harvey Lecture at the New York Academy of Medicine May 20, on "Nervous and Hormonal Mechanisms in Sexual Behavior."

Dr. Glenn Appointed Stimson Professor of Surgery.—Dr. Frank Glenn, assistant professor of clinical surgery, has been appointed Louis Atterbury Stimson professor of surgery at Cornell University and surgeon in chief of the New York Hospital to succeed Dr. George J. Heuer, who will retire. Dr. Glenn is a graduate of Washington University School of Medicine, St. Louis, and has been on the faculty at Cornell since 1932. He is the last of the Gorham Peters traveling fellows appointed by Dr. Harvey Cushing.

Dr. Price Retires from Department of Hospitals.--Dr. Thomas I. Price, general medical superintendent, Department of Hospitals, retired April 16 after thirty-nine years' service to the municipal hospitals. Employees of the central office of the department honored Dr. Price at a reception. A testimonial dinner also was held. During World War I he was assigned to the Army Medical College from 1915 to 1917; later, he became head of the Central Neurological Hospital. In 1922 he organized the New York City Cancer Institute with the late Dr. Isaac Levine, cancer specialist. He was medical superintendent of City Hospital on Welfare Island from 1938 to 1944 and on Feb. 1, 1944 was appointed general medical superintendent by Commissioner Edward M. Bernecker, M.D.

Doctor Composes Music for Doctors' Orchestra.--The Doctors' Orchestral Society of New York gave its annual concert at the Hunter College Auditorium on May 13. This symphonic group of seventy doctors, dentists and members of allied professions plays each year for some worthy benefit. This year the proceeds go to the charitable and educational program of the Physicians' Wives League of Greater New York. The feature of this concert was the world premiere of an orchestral suite called "The Hospital" composed by Dr. Herman M. Parris, University of Pennsylvania, Philadelphia, who has been composing orchestral and instrumental works for many years. "The Hospital" is written in ten movements depicting the reactions of a young woman who enters the hospital for an appendectomy. Her reactions at the information desk, with the nurse, the intern and the surgeon, and at the preoperative prayer, are described musically.

NORTH DAKOTA

Annual State Medical Meeting.—The North Dakota State Medical Association will meet in the Jamestown Armory, Jamestown, May 22-25 under the presidency of Dr. Philip G. Arzt of that city. The guest speakers will be:

Erling W. Hanson, Minneapolis, Stevens Johnson Syndrome.
John P. Caffey, New York, Roentgen Changes in Primary Tuberculosis.
Allan C. Barnes, Columbus, Ohio, Use of Female Sex Hormones in Clinical Practice.
Philip K. Arzt, St. Paul, Psychosomatic Medicine in General Practice.
Arthur Abt, Chicago, Diagnosis of Poliomyelitis.
Mavis P. Kelsey, Deport, Texas, Diagnosis and Treatment of Thyroid Disease.
Malcolm B. Dockerty, Rochester, Minn., Ovarian Neoplasms.

The annual banquet will be at the country club on Monday at 7 p.m. The Woman's Auxiliary will meet in conjunction with the state society.

OREGON

Southern Oregon Medical Society.—The annual meeting of Southern Oregon Medical Society will be held June 1 at the Oregon Caves Chateau near Grants Pass. Subjects under discussion include industrial accident commission practice and problems, newer concepts of electrocardiography in coronary artery disease, outlook for American medicine, obstetric problems met in premature labor, erythroblastosis and common surgical diseases of children. Members of the Oregon State Medical Society are invited. Reservations may be made by writing to the Oregon Caves, U. S. National Bank Building, Grants Pass.

PENNSYLVANIA

Survey of Public Health Activities.—The Pennsylvania Department of Health has requested the American Public Health Association to survey the public health activities of Pennsylvania. This survey was recommended last year by the Medical Society of the State of Pennsylvania. Important among the aspects of this survey will be the efficiency, scope and effectiveness of (1) the state department of health, (2) health service to local communities and (3) the relation of the state and local departments of health to voluntary agencies. A committee of public-minded citizens, to be appointed by Governor Duff, will serve in an advisory capacity. Dr. Roscoe P. Kandle, New York, field director of the American Public Health Association, is directing the study.

Philadelphia

Appoint Vice President and Deans of University.—Dr. Robin C. Buerki, dean of the Graduate School of Medicine and director of hospitals at the University of Pennsylvania School of Medicine, has been elected vice president of the university in charge of medical affairs. He will succeed A. Newton Richards, Ph.D., LL.D., who will retire after thirty-eight years of service. Dr. John McK. Mitchell has been elected dean of the School of Medicine as the successor of Dr. Isaac Starr, who asked to be relieved of administrative duties. Dr. William S. Parker will succeed Dr. Buerki as dean of the Graduate School of Medicine. A member of the medical faculty of the university since 1936, Dr. Parker has been assistant dean of the Graduate School of Medicine for two years.

TENNESSEE

State Medical Election.--At the annual meeting of the Tennessee State Medical Association in Nashville April 13-15, Dr. Hurley W. Qualls, Memphis, was installed as president and Dr. Nathaniel S. Shofner was named president-elect. Dr. William M. Hardy, Nashville, will continue as secretary.

Honor Dr. Hyman.—A portrait of Dr. Orren W. Hyman, dean of administration of the Memphis Division, University of Tennessee, Memphis, was presented to the university February 11, the gift of medical alumni and friends. Dr. Hyman received his LL.D. in 1938 from Southwestern College, Memphis. He has been with the University of Tennessee since 1913 and has been dean of administration and dean of medicine since 1925.

UTAH

Cancer Symposium.—A symposium covering advances in cancer etiology, diagnosis and therapy will be given May 28-29 at the University of Utah School of Medicine, Salt Lake City. Principal speakers include Dr. Austin V. Deibert, U.S. Public Health Service, Washington, D.C.; Dr. Frank B. Queen, Portland, Ore.; Dr. David A. Wood, San Francisco, and Dr. Andrew H. Dowdy, Los Angeles.

WASHINGTON

Appoint Professor of Obstetrics.—Dr. Russell R. DeAlvarez-Skinner, Portland, Ore., has been appointed professor of obstetrics and gynecology at the University of Washington School of Medicine, effective July 1. A graduate of the University of Michigan Medical School, Ann Arbor, he became instructor in the department of obstetrics and gynecology in 1938 and for several years served as consultant for the State of Michigan under the University's School of of Post-graduate Medical Education. Following service in the navy in the recent war, he engaged in private practice in Portland. Dr. Gordon G. Thompson, Seattle, has been appointed clinical professor of obstetrics and senior consultant in this department.

GENERAL

Society Elections.—The American Society for Pharmacology and Experimental Therapeutics, Inc., at the annual meeting March 16 in Atlantic City, N. J., elected Dr. Carl A. Dragstedt, Chicago, president, and Dr. Harvey B. Haag, Richmond, Va., secretary.

Headquarters of Academy of General Practice.—The American Academy of General Practice, organized a year ago at the convention of the American Medical Association, has established national headquarters at 231 West Forty-Seventh Street, Kansas City, Mo., with Mac F. Cahal, acting executive secretary.

Joint Orthopedic Meetings in Quebec.--The first combined meeting of the American, British and Canadian orthopedic associations will meet June 3-6 in Quebec, Canada. In addition to numerous papers by members of the associations, the speakers will include Drs. Malcolm B. Dockerty, Rochester, Minn.; Sten Friberg, Stockholm, Sweden; Philip C. Trout, Roanoke, Va.; Mary S. Sherman, Chicago, Ill.; Fuller Allbright, Boston; Arthur W. Ham, Toronto, William V. Cone, Montreal; and Kenneth G. McKenzie, Toronto. The Saturday afternoon program will be a round table discussion on undergraduate teaching in orthopedic surgery.

Section Meeting of Pathologists.—The Middle Eastern Region of the College of American Pathologists will meet in Washington, D.C., May 24-25 with headquarters at the Medical Society of the District of Columbia. The meeting is jointly sponsored by the local society of pathologists and the Section on Pathology and Laboratory Medicine of the district medical society. Various portions of the program are scheduled for the Naval Hospital, Bethesda, Md., Walter Reed General Hospital and the U.S. Public Health Service. Reservations should be sent to the Mayflower Hotel. Registration is open to all pathologists and other interested physicians. An attendance fee of $1 will be charged.

Gastroenterological Association.--The National Gastroenterological Association will hold its thirteenth scientific session in New York June 7-10. The program for the first three days will be at the Hotel Pennsylvania and will consist of symposiums on gastroduodenal ulcer; ulcerative colitis; jaundice and metabolism, and nutrition and allergy. The panel discussion will be followed by a " question and answer " period. At the banquet Tuesday evening, the winner of the National Gastroenterological Association's 1948 Cash Prize Award Contest for the best unpublished contribution on gastroenterology will be announced. Details may be obtained by writing to the Secretary, National Gastroenterological Association, 1819 Broadway, New York 23.

Science Writing Awards.--Competition for the George Westinghouse Science Writing Awards will terminate in July. The awards consist of two $1,000 grants, one to the author of the best newspaper science writing and the other to the writer whose work appears in a magazine of general circulation. The awards are administered by the American Association for the Advancement of Science from a grant by the Westinghouse Educational Foundation. Entries for this year's two awards must have been published in a newspaper between Oct. 16, 1947 and July 31, 1948 or in a magazine between October 1947 and July 1948. All entries must be in the judges' hands at the American Association for the Advancement of Science, 1515 Massachusetts Ave. N.W., Washington, D.C., by August 9.

Clinical Surgeons Annual Meeting and Tour.--The Southern Society of Clinical Surgeons will hold its eighteenth annual meeting at the Palmer House, Chicago, May 26, under the presidency of Dr. Emmett B. Frazer, Mobile, Ala. Subjects to be presented include heparinemia and hemorrhage, surgery of the stomach and the gallbladder, diagnosis of surgical jaundice and of congenital malformations of the heart amenable to surgical treatment. After a visit to the Veterans Hospital, Hines, Ill., the group leaves for Los Angeles, where they will attend sessions at the Los Angeles County Hospital; then on to Honolulu, where they will remain for a week during which the Honolulu Surgical Society will present a program. The group returns to San Francisco June 14, then goes to Portland, Seattle, Vancouver, Lake Louise, Banff and Winnipeg, participating in hospital clinics at various stops. They will return to St. Paul June 30.

Pan American Association of Ophthalmology.—Dr. Conrad Berens, New York, was elected president of the Pan American Association of Ophthalmology at the third Pan American Congress in Havana, Cuba, January 4-10. The next congress will be held in Mexico City in 1952. The Pan American Association of Ophthalmology was established as a continuing organization of the Western Hemisphere to promote measures to conserve eyesight and prevent blindness. The statutes provide for an Inter-American Federation of Ophthalmologic Societies and for a Bureau of Professors of Ophthalmology, who are to encourage the formation of centers for graduate study, to effect interchanges of professors and alumni among teaching centers, to arrange for and manage prizes and scholarships and to arrange for examinations and issue certificates of proficiency to physicians who seek them. The bureau's activities are not intended to interfere with independent examining boards already functioning efficiently.

American Surgical Association.—The American Surgical Association will meet at the Chateau Frontenac, Quebec, Canada, May 28-29 under the presidency of Dr. W. Edward Gallie, Toronto, Canada. In addition to numerous papers by members of the association, those invited to present papers are Warren H. Cole, Chicago; John H. Mulholland, New York; Laurence S. Fallis, Detroit; Frank H. Lahey, Boston; Frederick A. Coller, Ann Arbor, Mich.; Everett I. Evans, Richmond, Va.; Joe V. Meigs, Boston; Charles Huggins, Chicago; George M. Curtis, Columbus, Ohio; Ralph Colp, New York; Clarence Dennis, St. Paul; Gustav E. Lindskog, New Haven, Conn; George H. Yeager, Baltimore; Earle B. Mahoney, Rochester, N.Y.; Roy D. McClure, Detroit; Bradley L. Coley, New York; Jacob Fine, Brookline, Mass.; Howard C. Naffziger, San Francisco; Howard A. Patterson, New York; Loyal Davis, Chicago; John D. Stewart, Buffalo; Alfred Blalock, Baltimore; John S. Lockwood, New York; Lester R. Dragstedt, Chicago, and John H. Gibbon Jr., Philadelphia. There will be a formal dinner May 28 at 7:30 for fellows and guests of the association.

Awards in Mental Hygiene.--The 1948 Lasker Award of $1,000 for outstanding service in mental hygiene will be presented for a significant contribution to the education of the nonpsychiatric medical practitioner in the psychologic aspects of the practice of medicine. The work of candidates for the award must have been accomplished or generally accepted during the past year or two. Presentation of the award will be made at the annual meeting of the National Committee for Mental Hygiene, November 3-4 in New York. Any one may submit nominations, which should be forwarded by September 1 to the National Committee for Mental Hygiene, 1790 Broadway, New York 19.

National Safety Contest Winners.--The National Safety Council announced April 15 the winners in the National Traffic Safety Contest conducted by the council, in which six hundred and twenty-two cities of more than 10,000 population and forty-eight states participated. Oklahoma City and Wilmington, Del., tied for the grand award among the cities with a program which resulted in a reduction of 44 and 69 per cent, respectively, in 1947 traffic deaths as compared with 1946. Among cities of 500,000 and over Cleveland placed first, with Detroit and Washington, D. C., in second and third place. Oklahoma city won and Seattle placed second in the 200,000 to 500,000 class. Flint, Mich., placed second to Wilmington, Del., in the 100,000 to 200,000 group. In cities of 50,000 to 100,000 St. Joseph, Mich., won first place and Lakewood, Ohio, second. Dubuque, Iowa, was first in the 25,000 to 50,000 group with only two traffic deaths in 1947. Logan, Utah, won in the 10,000 to 25,000 group and maintained its previous two year record of no fatalities. Stillwater, Okla., second to Logan, completed its eighth year without a traffic fatality in 1947. Connecticut was the winner of the grand award for states with a mileage death rate (deaths per hundred million vehicle miles) of 4.3, half the national rate. Massachusetts and New Jersey tied for second place in the Eastern division. Virginia, Texas and Oklahoma, in that order, were winners of the Southern division, and Washington far outclassed other states in the Western region.

GREAT BRITAIN

International Postgraduate Courses. -- Roffey Park Rehabilitation Centre, Horsham, Sussex, is presenting international postgraduate courses on social and industrial psychiatry from June 28 to September 26. The first course extends from June 28 to July 4, the second from August 9 to 15, the third from August 23 to 29 and the last from September 20 to 26. Lectures and tours of rehabilitation centers make up the program. Accommodations for each course are limited to twenty-four persons, who will reside in a club on the estate. The fee, which covers tuition, residence and social activities, is $50. Early application for vacancies should be made to the Secretary, Roffey Park, Horsham, Sussex, England. Checks should be made payable to Roffey Park Rehabilitation Centre, Barclays Bank (Dominion, Colonial and Overseas), 120 Broadway, New York.

CORRECTIONS

Dr. Spurr Appointed Director of Hospital Clinic.—Dr. Charles L. Spurr, formerly on the faculty of the University of Chicago, has been appointed internist and director of the clinic at the M.D. Anderson Hospital for Cancer Research, Houston, Texas, not director of the hospital as stated in THE JOURNAL, April 17, page 1057.

Report of Officers.—In THE JOURNAL, May 8, among the "Reports of Officers," portions of other bureau reports were interposed between the two portions of the report of the Bureau of Health Education. On page 166, column 2, the report of the Bureau of Health Education apparently ends in the midst of a paragraph relating to "Pamphlets." This copy is continued on page 175, column 1, with the fourth paragraph which begins on that page, and it continues through to the end of the report of the Bureau of Health Education near the bottom of the second column of page 175. The latter portion of the report of the Bureau of Health Education was erroneously included in the report of the Bureau of Medical Economic Research.

Deaths

Neil Dugald Buie ⊕ Marlin, Texas; born in Scotland, Ark., April 11, 1879; Vanderbilt University School of Medicine, Nashville, Tenn., 1907; past president of the State Medical Association of Texas and the Falls County Medical Society; member and past president of the Federation of State Medical Boards of the United States; for many years member of the state board of medical examiners; member of the Association of Military Surgeons of the United States; fellow of the American College of Physicians; specialist certified by the American Board of Internal Medicine; member and past president of the local school board; member and past president of the Marlin Chamber of Commerce; past president of the East Texas Chamber of Commerce, of which he had been director and divisional vice president; owner of a hospital; chairman of the Falls County Foundation for Crippled Children; for many years health editor of the *Texas Outlook;* died February 9, aged 68, of heart disease.

Fred William Gaarde ⊕ Rochester, Minn.; born in Minden, Neb., June 20, 1887; Rush Medical College, Chicago, 1912; an instructor in medicine at his alma mater and an assistant on the attending staff at Presbyterian Hospital in Chicago from 1914 to 1920; joined the Mayo Clinic as an associate in medicine on Sept. 1, 1920; associate professor of medicine at the Mayo Foundation, where he served as head of a section of medicine and later as senior consultant in that section; a major in the medical corps of the American Expeditionary Forces during World War I; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the Institute of Medicine of Chicago, the Society of Internal Medicine of Chicago, Central Clinical Research Club and the Minnesota Society of Internal Medicine; died February 10, aged 60, of coronary insufficiency.

William Thompson Briggs ⊕ Lexington, Ky.; born in Nashville, Tenn., Aug. 19, 1881; Vanderbilt University School of Medicine, Nashville, 1909; past president of the Fayette County Medical Society; member of the American Urological Association; fellow of the American College of Surgeons; specialist certified by the American Board of Urology; served during World War I; formerly a member of the faculty of his alma mater; for many years associated with the Lexington Clinic; on the staffs of Veterans Administration Hospital, Good Samaritan Hospital and St. Joseph's Hospital; formerly associate editor of the *Nashville Medical and Surgical Journal,* which later became the *Journal of the Tennessee State Medical Association;* died in St. Joseph's Hospital February 1, aged 66.

Walter Barclay Mount ⊕ Montclair, N.J.; born Feb. 5, 1880; Columbia University College of Physicians and Surgeons, New York, 1905; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons and of the American Clinical and Climatological Association; fellow of the American College of Surgeons; served as secretary of the Society of Surgeons of New Jersey and as second vice president of the Essex County Medical Society; an officer serving during World War I; for many years affiliated with the Mountainside Hospital and the Montclair Community Hospital; died February 10, aged 68, of coronary occlusion.

John Alexander McCreery ⊕ New York; born in New York Oct. 19, 1885; Columbia University College of Physicians and Surgeons, New York, 1910; served as associate clinical professor of surgery at his alma mater; member of the founders group of the American Board of Surgery; member of the American Surgical Association; fellow of the New York Academy of Medicine and the American College of Surgeons; past president of the New York Surgical Society; served in France with the British and American Expeditionary Forces during World War I; for many years affiliated with Bellevue Hospital and the Greenwich (Conn.) Hospital, where he died January 31, aged 62, of pneumonia.

Charles Hume Baldwin ⊕ Utica, N. Y.; born in Medford, Mass., Dec. 23, 1876; Harvard Medical School, Boston, 1904; member of the American Academy of Orthopedic Surgeons and the Utica Academy of Medicine; fellow of the American College of Surgeons; served during World War I; chief of staff at the Children's Hospital Home since its founding; chief of staff of the Utica Dispensary and on the staffs of St. Elizabeth, St. Luke's and Faxton hospitals; visiting physician at the Pine Crest Sanatorium in Salisbury Center, and the Broadacres Sanatorium; died in Sanford, Fla., January 26, aged 71, of coronary thrombosis.

Hovsep Garo Adams, Fresno, Calif.; Boston University School of Medicine, 1914; affiliated with the St. Agnes Hospital, where he died January 28, aged 62, of heart disease.

Orville Lewis Adams, Aberdeen, Wash.; Rush Medical College, Chicago, 1906; member of the American Medical Association; served during World War I; affiliated with St. Joseph's Hospital; died January 28, aged 68, of intestinal hemorrhage.

Alex Eckel Bryan Alford ⊕ Bainbridge, Ga.; Columbia University College of Physicians and Surgeons, New York, 1909; medical director and owner of the Bainbridge Hospital; died January 14, aged 72.

H. Melvin Allen, Mount Penn, Pa.; Medico-Chirurgical College of Philadelphia, 1894; veteran of the Spanish-American War; on the staff of the Philadelphia General Hospital; died January 11, aged 78, of auricular fibrillation.

Nathan Johnson Bicknell ⊕ Detroit; University of Toronto Faculty of Medicine, Toronto, Canada, 1920; died in Harper Hospital January 28, aged 52, of hypertensive renal disease.

Oscar Henry Bohm ⊕ Yonkers, N.Y.; Columbia University College of Physicians and Surgeons, New York, 1901; past president of the Yonkers Academy of Medicine; formerly member of the board of education; served on the staff of St. Joseph's Hospital; died in the Yonkers Professional Hospital January 28, aged 70, of intestinal obstruction.

John Calhoun Boone, South Bend, Ind.; University of Louisville (Ky.) Medical Department, 1895; member of the American Medical Association; veteran of the Spanish-American War; served in France during World War I; died January 11, aged 82, of coronary thrombosis.

Bruce Hardy Brown, San Ysidro, Calif.; Barnes Medical College, St. Louis, 1910; served with the U.S. Department of Interior, in the medical Corps of the U.S. Army during World War I and two years with the U.S. Public Health Service; veteran of the Spanish-American War; died January 22, aged 66, of cerebral hemorrhage and hypertension.

Charles Wilson Conley ⊕ Columbus, Ohio; Eclectic Medical Institute, Cincinnati, 1895; Rush Medical College, Chicago, 1898; died in St. Francis Hospital January 28, aged 81, of cerebral hemorrhage.

Willis Frank Cotten ⊕ McComb, Miss.; University of Virginia Department of Medicine, Charlottesville, 1928; specialist certified by the American Board of Otolaryngology; served during World War I; past president of the Pike County Medical Society; affiliated with the McComb City Hospital and McComb Infirmary; served as president of the Chamber of Commerce, died in Baptist Hospital, New Orleans, January 19, aged 49.

James Rea Cowan, Van Nuys, Calif.; University of Southern California School of Medicine, Los Angeles, 1909; died January 19, aged 66.

Elijah Matthew Craighead Jr., Kimball, W. Va.; Meharry Medical College, Nashville, Tenn., 1928; assistant surgeon at the Welch Emergency Hospital; died in Lakin January 16, aged 43, of pneumonia.

Frederick Ellery Cruff, Norwell, Mass.; Harvard Medical School, Boston, 1920; member of the American Medical Association; served during World War II; died January 18, aged 55, of coronary thrombosis.

Paul Quincy Daniel, Grundy, Va.; Medical College of Virginia, Richmond, 1933; died in the Clinch Valley Clinic Hospital, Richlands, January 30, aged 41, of cirrhosis of the liver.

Eugene B. Dewees, Caneyville, Ky.; Hospital College of Medicine, Louisville, 1905; served as a member of the city and county board of education; died January 21, aged 68, of heart disease.

George Washington Dunn ⊕ New Britain, Conn.; Baltimore Medical College, 1909; past president of the Hartford County Medical Society; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; affiliated with the New Britain General Hospital, where he died January 31, aged 59, of cirrhosis of the liver and pernicious anemia.

Robert H. Flader, Webster Groves, Mo.; Missouri Medical College, St. Louis, 1897; died in the Deaconess Hospital, St. Louis, January 29, aged 73.

John W. Frizzell, Pasadena, Calif.; Homeopathic Hospital College, Cleveland, 1884; died January 19, aged 93, of bronchopneumonia.

Edward Henry Ganley ⊕ Methuen, Mass.; Tufts College Medical School, Boston, 1917; served during World War I; member of the Selective Service Board during World War II; affiliated with the Clover Hill and Lawrence General hospitals in Lawrence; formerly town physician; died January 23, aged 56, of congestive heart disease.

Lester Pierpont Gerrish ⊕ Lisbon Falls, Maine; Harvard Medical School, Boston, 1904; past president of the Maine Medical Association and of the Androscoggin County Medical Society; died recently, aged 72.

Andrew J. Glover, Guy, Ark. (licensed in Arkansas in 1903); past president of the Faulkner County Medical Society; died January 23, aged 78, of cerebral hemorrhage.

William Gregory Gunn ⊕ Versailles, Mo.; Barnes Medical College, St. Louis, 1909; fellow of the American College of Chest Physicians; died January 2, aged 62, of coronary thrombosis.

Allen P. Gurganious ⊕ Palatka, Fla.; St. Louis University School of Medicine, 1931; president of the Putnam County Medical Society; served during World War II; died in Elkton January 28, aged 41, of injuries received in an automobile accident.

George W. Haan ⊕ Aurora, Ill.; Illinois Medical College, Chicago, 1900; formerly city health commissioner; died in the Mercyville Sanitarium February 9, aged 83, of cerebral thrombosis.

Mary Gertrude Halton, New York; Cooper Medical College, San Francisco, 1900; member of the American Medical Association; died in Doctors Hospital January 25, aged 69, of pulmonary tuberculosis and pancreatic cyst.

John Ryland Harlow, Jonesboro, La.; University of Arkansas School of Medicine, Little Rock, 1935; interned at the Shreveport Charity Hospital in Shreveport; served overseas during World War II; died in a Kansas City, Mo., hotel February 7, aged 37, of pulmonary tuberculosis, cirrhosis of the liver and acute nephritis.

Edmund Henry Hedges ⊕ Lima, Ohio; St.Louis University School of Medicine, 1918; specialist certified by the American Board of Urology, Inc.; member of the American Urological Association; fellow of the American College of Surgeons; affiliated with Lima Memorial Hospital and St.Rita's Hospital, where he died February 11, aged 53, of coronary thrombosis.

George W. Heriot Sr., Savannah, Ga.; Atlanta Medical College, 1895; once served as city physician; died January 4, aged 79.

Verner George Heseltine, Taylors Falls, Minn.; L. R. C. P., London, and M. R. C. S., England, 1904; died in St. John's Hospital, St. Paul, Dec. 8, 1947, aged 71, of heart disease.

Patrick John Heston, Scranton, Pa.; College of Physicians and Surgeons, Baltimore, 1906; deputy county coroner; director of the women's division of the Pennsylvania State Sanatorium for Tuberculosis in Hamburg; on the staffs of the Mercy Hospital and State Hospital, where he died January 29, aged 61.

Frederick William Heyer ⊕ Nanticoke, Pa.; Medico-Chirurgical College of Philadelphia, 1912; specialist certified by the American Board of Surgery; member of the Radiological Society of North America, Inc.; fellow of the American College of Surgeons; chief surgeon at the Nanticoke State Hospital; died suddenly January 7, aged 61.

Joseph Howard Hodges, Martinsburg, W. Va.; University of Maryland School of Medicine, Baltimore, 1908; affiliated with the City Hospital; director and vice president of the Jefferson Security Bank of Shepherdstown, W. Va.; for many years medical examiner for the Baltimore and Ohio Railroad; died January 7, aged 65, of coronary thrombosis.

Walter Bayard Huey ⊕ Joliet, Ill.; Rush Medical College, Chicago, 1903; fellow of the American College of Surgeons; past president of the Will-Grundy Counties Medical Society; served as a member of the board of trustees of the Will County Tuberculosis Sanatorium; on the staff of Silver Cross Hospital, where he died January 25, aged 69, of arteriosclerosis and cerebral hemorrhage.

Virgil B. Jackson ⊕ Washington, D. C.; Columbian University Medical Department, Washington, D. C., 1894; an Affiliate Fellow of the American Medical Association; fellow of the American College of Surgeons; member of the medical advisory board during World War I; at one time police surgeon; for many years on the faculty of his alma mater and on the staffs of George Washington University Hospital and Emergency Hospital, where he died February 15, aged 79, of prostatitis and renal calculi.

George Berlin Jastram ⊕ Aberdeen; Md.; Jefferson Medical College of Philadelphia, 1939; died January 31, aged 34, of cerebral hemorrhage.

Foreign Letters

PARIS

(From Our Regular Correspondent)
March 15, 1948.

Penicillin in Malignant Endocarditis Lenta

At a recent meeting of the French Society of cardiology, devoted to malignant endocarditis lenta, E. Donzelot, H. Kaufmann and J. Escalle reported 405 cases of this disease with treatment at the cardiologic clinic of the Broussais hospital. They classified these cases as of three types: (1) those with positive hemocultures; (2) those with negative hemocultures (25 per cent of the cases) and with parenchymatous lesions of the kidneys, spleen, liver and myocardium (in these cases treatment was particularly difficult, according to the authors, because of the behavior of the bacteria agglutinated on the vessel walls and in the visceral capillaries and also because of the lack of bacteriologic tests); and (3) those with subacute ulcers (often with negative hemoculture) and evoluting in several months toward cardiac insufficiency. The authors stress that the chief problem is estimation of the daily dose of penicillin to be given intramuscularly; it varies from 500,000 units in the more favorable cases to 50,000,000 units or more in more resistant cases In cases with positive hemocultures, three criteria are used to decide the dosage: (1) sensitivity of the organisms to penicillin; (2) hemocultures every fifth day during treatment, and (3) abrupt cessation of treatment twenty-five to thirty days after a negative hemoculture has been obtained and careful observation of the patient during the following month. Recovery resulted in 85 per cent of the cases with positive hemocultures and in 47 per cent of cases with negative hemocultures; there were 6 failures in the 6 cases of subacute primary endocarditis. In 8 cases with positive hemocultures G. Marchal obtained 5 apparent recoveries, lasting from four to thirteen months; 2 patients died from cardiac insufficiency and 1 from cerebromeningeal hemorrhage. The author stresses the necessity of improving the technic of hemocultures by modifying the culture mediums and increasing the number of sternal and splenic punctures. He thinks that impure fractions of penicillin may induce a functional myocardial insufficiency. G. Giraud emphasizes also the importance of myeloculture, which was positive in 2 cases with negative hemoculture. A. Camelin, A. Guibert, Noger and Tarel (Lyons) report 14 cases of subacute primary bacterial endocarditis with negative hemocultures and isolated aortic localizations, which were all penicillin-resistant. Sedillian and Monnet, in 25 cases of malignant endocarditis lenta, obtained 12 good results lasting from one to twenty-three months; they met with 10 failures, among which were 9 deaths in the course of treatment and 1 after an immediate good result but followed by an exacerbation. They, too, believe that penicillin is not without a harmful effect on the heart.

Endocarditis Due to Escherichia Coli

At the Claude-Bernard hospital, Morin, Dupont and Cavigneaux treated 2 patients with acute malignant endocarditis due to Escherichia coli, an uncommon affection (of which the world bibliography, studied by the authors, mentions 46 cases in sixty-two years). The first patient was a woman, aged 28, in whom five months after recovery from pyelonephritis due to Esch. coli, violent lumbar pain, hematuria, purulent urine and fever occurred suddenly. Blood culture was positive for Esch. coli. Despite sulfonamide therapy, the septicemia was complicated by icterus, azotemia and purulent meningitis, and there was a systolic murmur at the apex of the heart. Notwithstanding streptomycin therapy in a total dosage of 4,000,000 units given intramuscularly and of 500,000 given intraspinally, death occurred on the fourth day. Necropsy revealed large vegetations, in the form of a cauliflower, on the mitral orifice, and infarcts in the spleen and kidneys. The other patient was a woman, aged 38, in whom severe chills were followed by a temperature of 105.8 F. A definite menigeal reaction was noted, also an anemia with 2,600,000 red cells, azotemia and bronchitis. The patient received for five days a daily dose of 10 grains (0.65 Gm.) of sulfonamide compound, and for four days penicillin was given without any therapeutic effect; twelve days later, hemoculture was for the first time positive as regards Esch. coli. After hospitalization, hemoculture was again positive for the organism and 30 micrograms of streptomycin per cubic centimeter was necessary to inhibit its growth in vitro. After having been given during six days a total of 9 grains (0.58 Gm., 580,000 units) of streptomycin the patient died. At necropsy, on the wall of the right auricle, at a certain distance from the tricuspid orifice, a vegetation 1.5 cm. in diameter was found. The authors noted that the two patients had no rheumatic ancestors, and no prior cardiac condition. It is not possible to draw conclusions regarding the curability of endorcarditis due to Esch. coli, as the streptomycin therapy could not be used soon enough; higher doses, given under strict supervision, are to be recommended.

BERLIN

(From Our Regular Correspondent)
March 4, 1948.

Medical Professional Developments in the Soviet Zone

In the Soviet-occupied zone of Germany certain developments in the medical profession reflect clearly the prevailing trend to do away with freedom of the individual for the sake of the totalitarian system. Within this system, the position of the physicians is not different from that of other persons, no better and no worse. One thing is clear: the physician in the Soviet zone of occupation has ceased to exercise freedom in his profession.

Registration Order for Physicians

On Jan. 15, 1947 a decree was issued by the Central Administration of Health in the Soviet zone of Germany, ordering the obligatory registration of all physicians with the stated purpose of organizing their proportionate distribution over the whole zone. The order appeals to voluntary cooperation by physicians in carrying out this plan but leaves no doubt that nonconformists have no other choice and must comply with the issued orders. All physicians within the zone have to register not only with local authorities but with the central agency. This registration is based on a questionnaire requesting a wide range of professional and personal data. The physician has to provide details concerning his training, qualifications, specialties and abilities in related fields. He must report within a week each material change in his personal circumstances, such as marriage, birth of a child, change of residence or professional activity, acquisition of a degree and the like. The duties to report such matters are so broadly worded that it is difficult to state their limitations, particularly in view of of the fact that, at the request of the Central Health Office, he has to appear at any time before that agency to answer in person any question deemed pertinent about his professional or personal life. The duty to report includes also the disclosure not only of his political past between 1939 and 1945 (as required by Control Council Directives 24 and 38) but of his present political activities. This is motivated by the desire of the central authorities of the Soviet zone to inquire into the extent to which the physician is participating in the political reorientation. Heavy penalties are provided for violation of the duty to provide information asked for by the order.

Medical Profession Part of Trade Union Organization

By circular letter of Nov. 28, 1946 the "Voluntary" organization of all physicians, dentists, apothecaries and veterinarians (irrespective of whether they exercise a free profession or are engaged on an employment basis) was established as *Fachgruppen* (professional groups) of the branch *Gesundheitswesen* within the provincial or territorial organization of the *Freier deutscher Gewerkschaftsbund*, the association of the Communist-influenced German trade unions. A local professional group may be organized in each town where there is a minimum of twenty members of the profession. Former nominal members of the Nazi party may be admitted but may not be office holders. These professional groups elect special committees for professional questions, scientific matters and economic problems, which cooperate with the provincial and central offices in carrying out the policies laid down by the official Health Administration.

OSLO

(From Our Regular Correspondent)

April 17, 1948.

Fair Play in Hospital Appointments

Nobody wants to cheat, but every one appreciates the advantage of a running start. Similarly, the old suspect and the young know that the other side is not endowed with the moral integrity of Caesar's wife. Hence the development in each of the three Scandinavian countries of a group of physicians with the title in Norway of the Association of Younger Doctors. As of January 1948 this group became a branch of the Norwegian Medical Association. In the annual report of this young association an account is given of some of the 346 instances in which it has intervened on behalf of its members. In as many as 243 of these cases the problem was one of salary or remuneration, and in 33 cases it dealt with complaints over hospital appointments. In 39 instances the problem concerned the working conditions, etc., of hospital physicians.

The situation becomes extremely delicate when the head of a public hospital indulges in preferences with regard to junior appointments which require the strictest impartiality. It is the duty of the head of the Norwegian Public Health Service, the health director, to make recommendations, but his is not always the last word. And even when it is, his decisions are sometimes challenged, although in his office a careful account is kept of the career and record of practically every physician in Norway. It is easy enough to allot points for terms of hospital service and the like, but how can one measure in figures such qualities as patriotism or the lack of it? It is easy enough to distinguish between a former quisling and a doctor whose patriotism entailed imprisonment during the German occupation, but in this field there are many other finer distinctions to be made. To many of these problems there is no clearcut solution, but the Association of Younger Doctors is at work to make hospital appointments as fair as possible in this hard and competitive world.

The Scandinavian Medical Press

A few years ago nearly all the really important medical journals in Denmark, Finland, Norway and Sweden joined forces in a conglomerate publication known as *Nordisk Medisin*. This weekly publication contributed much to the prestige of Scandinavian medicine abroad, but at home it did not give full satisfaction. It was objected that by keeping to national watertight compartments the editors had failed to produce a cohesive publication reflecting the universal character of medical science. Might not national grouping of the subject matter give place to a scientific grouping which paid no heed to national boundaries? This question and many others were discussed and a satisfactory compromise was achieved, resulting in the issue of this publication at the beginning of 1948 in a much changed form. *Nordisk Medisin* has now become *Nordisk Medicin*. A staff of specialists has been engaged to contribute unsigned editorials and comments, and the space allotted to each signed article has been strictly rationed. This rationing has been effectively applied also to the transactions of medical societies, and space has been found for short case records, therapeutic hints and a host of minor details likely to interest the general practitioner as well as the research worker. Original articles are grouped so that individual articles on the same subject treated from different points of view. Notes on persons as well as on things are particularly useful to the Scandinavian reader wanting to know who's who in neighboring countries.

The Fate of Objectors to BCG

In the tuberculosis department of Oslo's Municipal Public Health Service the rule has been practiced for several years of offering every tuberculin-negative youngster intracutaneous BCG vaccination when a radiologic examination of the lungs is negative. Those who object to BCG vaccination (and hitherto every one has been free to object, but no longer) serve as controls, both the BCG-vaccinated and the objectors being kept under supervision for years after leaving school. Dr. G. Hertzberg has recently published such a control comparison, his material concerning youngsters who, at the age of 13, accepted or refused BCG vaccination. Among the 127 boys and 106 girls who were vaccinated, there were only 1 boy and 1 girl in whom signs of tuberculosis subsequently developed, whereas among the 66 boys and 75 girls who refused BCG vaccination there were 34 boys and 43 girls who subsequently showed signs of tuberculosis. This investigation covered the period 1941 to 1946 and included all the youngsters belonging to the two categories studies. But the total BCG-vaccinated material of this tuberculosis department now amounts to well over 18,000 persons, whose careers will shortly be the subject of a comprehensive monograph on BCG vaccination.

Correspondence

CONTAMINATED DEXTROSE SOLUTION

To the Editor:—We are reviewing every procedure and record and testing every piece of equipment in the department involved, but at this moment we still do not know the cause of the contamination in some of the bottles of two lots of dextrose solution. The original tests were satisfactory, and retained samples and stocks remaining in our Berkeley warehouse were not contaminated. Some of the bottles returned from the field were unquestionably contaminated, a contamination which was apparent on visual inspection and viable on culture.

This laboratory has over a half century record of safety in the production of bioligicals and other products for parenteral injection. It is a record which neither management nor the men and women of unquestioned capability and integrity who staff the laboratories would wilfully jeopardize. Yet what was to us inconceivable happened. I need not protest of our extreme regret for this most unfortunate occurrence.

ROBERT F. CUTTER, M.D.,
President, Cutter Laboratories,
Berkeley, Calif.

Note.—The unfortunate experience of the Cutter Laboratories indicates the necessity for constant vigilance, particularly as relates to materials to be injected intravenously or otherwise into the human body. Apparently the Cutter Laboratories are doing everything possible to detect the source of contamination and to eliminate any such possibility for the future.—Ed.

THE EPILEPTIC DRIVER

To the Editor:—In the April 17 issue of THE JOURNAL, page 1062, Dr. Wartenberg of San Francisco commended the four states that require physicians to report cases of epilepsy to the state board of health in order that the drivers' licenses may be revoked. He hopes that other states will enact a similar law. I wish to register my vigorous objections to such a law.

It defeats its own purpose in that many epileptic drivers may hesitate to seek the medical advice that might rid them of seizures and make them safe drivers. There is a more important objection. The California law applies to persons who have "lapses of consciousness which may be chronic." Only a minute proportion of persons who answer to this description are epileptic. Probably a hundred times more numerous are those who have recurrent impairment of consciousness because of an excessive use of alcohol. If Boards of Health and Registrars of Motor Vehicles are genuinely interested in putting dangerous drivers off the road, let them require that physicians report their alcoholic patients and *persons subject to syncope or heart attacks*, as well as those with epilepsy. I understand that some at least of the states commended by Dr. Wartenberg enacted this law without prior consultation with medical authorities. The state of Massachusetts has followed a more sensible course. The Registry of Motor Vehicles has asked physicians belonging to the League Against Epilepsy for advice regarding the licensing of epileptic persons, the possibility of electroencephalographic examinations in doubtful cases and the willingness of these physicians to assist in judging individual cases. Everyone desires greater highway safety. No one condones the licensing of the active epileptic; but to pick this small group out of the large mass of persons whose physical condition makes them a highway hazard and to require that their diagnosis, regardless of all circumstances, be reported to a nonmedical public agency is both unwise and unjust.

WILLIAM G. LENNOX, M.D., Boston.

Council of the World Medical Association visits headquarters of the American Medical Association. Reading from left to right: Dr. George F. Lull, Secretary and General Manager of the American Medical Association: Dr. S.C. Sen, India; Dr. O. Leuch, Switzerland; Dr. L. G. Tornel, Spain; Dr. A. Hartwich, Austria; Dr. El Marquis, France; Dr. D. Knutson, Sweden; Dr. P. Cibrie, France; Dr. Ernest E. Irons, Secretary of Board of Trustees, American Medical Association; Dr. J. A. Pridham, Great Britain; Dr. J. Stuchlik, Czechoslovakia; Dr. John Yui, China; and Dr. Louis H. Bauer. Secretary General of the World Medical Association.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Life Insurance: Death of Insured Following Abortion.--The plaintiff, as beneficiary, sued to recover on three life insurance policies issued to the deceased by the defendant insurance company. From a judgment for the plaintiff, the defendant appealed to the court of appeal of Louisiana, Orleans.

Each policy sued on provided in effect that no benefits would be payable if the insured died as the result of a violation of the law. The death of the insured resulted from acute tetanus following a criminal abortion, to which she had voluntarily submitted.

The defendant first contended that the deceased was an accessory to the abortion, which is a crime, and that the aforementioned provisions of the policies therefore absolved it from liability. The definition of the crime of abortion as found in the Louisiana criminal code, the court said, indicates that it was the legislature's intention to make the person who feloneously administers a drug or potion or any other substance to a pregnant woman, or who uses any instrument or any other means whatsoever on a pregnant woman, for the purpose of procuring a premature delivery of the embryo or fetus, guilty of the crime of abortion. The language used in the definition is not broad enough to show an intention to include a woman who consents or submits herself to an abortion, however, even though such woman is guilty of a detestable and revolting offense against the laws of nature. The defendant is absolved from liability in this case only if an unlawful act perpetrated by the insured caused her death. If it was the intendment that the insurer would not be liable if the criminal act causing death was that of a third person, a case might arise in which an innocent policy holder, without provocation, was feloniously killed by another, in which event the insurance company would be relieved of paying the policy, as it could be said that the death arose from a criminal act, even though the insured played no part therein, except being the victim. A provision of a life insurance policy relieving the insurer from liability where death results from a violation of the law is to be given a reasonable and common sense construction. We believe, the court concluded, that the exclusion of liability clause in question was intended to apply only in cases where death resulted from a violation of the law by the insured herself.

The defendant next argued that the act causing the insured's death was of a heinous and abhorrent character and that public policy precluded insuring her against its consequences. The record does not show what relationship, if any, existed between the plaintiff and the deceased, nor is it shown that he had any knowledge of the deceased's intention to submit to the operation or played any part in it. The plaintiff is, however, the designated beneficiary and seeks the recovery individually and for his own account. The question presented, said the court, is therefore: Should the plaintiff here, who is the named beneficiary of life insurance policies, be allowed to enforce collection of the policies where the death of the insured resulted from a criminal operation, the policies not expressly providing against the insurer's liability for death from such a cause?

It seems to be the general rule, the court of appeal said, to take into account two different classes of life insurance policies, one class being those policies made payable to the assured's estate, or to his personal representative by some appropriate designation, and the other class being those policies in which some third person is nominated and designated as beneficiary. The weight of authority appears to be to the effect that a person or his estate should not profit as a result of his own wrongdoing, and that when the maturity of an insurance contract made payable to the estate, or to the personal representative, is hastened or accelerated by his wrongdoing, even in the absence of any prohibitory clause in the contract, no recovery can be had on the policy. It is otherwise in cases involving policies in the latter class, i.e., those running in favor of third persons as beneficiaries, on the theory that the beneficiaries, having acquired a vested interest in the policies, cannot be either divested thereof or jeopardized therein, after issuance of the policies, by any wrongful act of the insured not excluded from coverage, for which they are not responsible. Even though the deceased came to her death as a result of the illegal operation for abortion to which she had voluntarily subjected herself, such submission on her part, which was reprehensible and detestable, cannot be used by the insurer as a valid defense to absolve itself from the payment of the proceeds of the policies to plaintiff, as plaintiff appears individually and as the designated beneficiary, having a vested interest in the policies. His rights as beneficiary could not be affected, and were not affected, in any way by the act of the insured, for which he was in no way responsible; there is no reason for disregarding the terms of the contract of insurance and exonerating the insurer on the grounds of public policy. Accordingly the judgment of the trial court in favor of the plaintiff was affirmed.—*Payne v. Louisiana Industrial Life Ins. Co., 33 So. (2d) 444 (La., 1948).*

Medical Motion Pictures

FILM REVIEWS

Human Reproduction 825 feet (one reel), showing time twenty-three minutes.

The anatomy, physiology and general functioning of the human reproductive system is well shown in this film. Outstandingly successful is the explanation of ovulation and menstruation. The subject is explained with fine scientific accuracy and complete objectivity so that there should be no embarrassment in either sex, though it would appear wise to show this film to college men and women in segregated groups. The essential facts that college men and women should know about the structure and function of the reproductive system are shown in such a way as to be easily understood. This film should be useful in the instruction of college groups, selected high school groups, nurses and teachers. A silent follow-up film strip, consisting of scenes selected from the corresponding motion picture over which questions are superimposed, accompanies each motion picture. Photography is excellent and the animation is well done.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Science, Philadelphia

215:1-122 (Jan.) 1948

Carcinoma of Lung. Adrian Lambert. -p. 1.
Statistical Study of 112 Cases of Benign Gastric Ulceration. M. Feldman. -p. 13.
*Experimental Study on Localization of Castle's Intrinsic Factor in Human Stomach. Anti Anemic Effect of Powdered Human Fundus and Pylorus. E. Landboe Christensen and C.M. Plum. -p. 17.
Rectal Polyps: Diagnosis, Five Year Follow Up, and Relation to Carcinoma of Rectum. J.R. Colvert and C.H. Brown. -p. 24.
Attempts to Inhibit Rh Antibody Production in Rabbits. Use of Ethylene Disulphonate. Sodium Salicylate. Pyribenzamine and A and B Specific Blood Substances. W.F. Scherer. -p. 33.
Variation in Prothrombin Test Technic. B. Fisher. -p. 39.
*Study of Mechanism and Treatment of Experimental Heat Pyrexia. W.M. Daily and T.R. Harrison. -p. 42.
Studies on Action of Intravenously Administered Sodium Amytal. S. Wolf and H.S. Ripley. - p. 56.
*Thiouracil and Propylthiouracil in Pre-Surgical and Medical Management of Thyrotoxicosis. R.C. Grauer, H. De Walt and C.W.W. Elkin.-p. 63.
Studies of Biotin Metabolism in Man: IV. Studies of Mechanism of Absorption of Biotin and Effect of Biotin Administration on Few Cases of Seborrhea and Other Conditions. T.W. Oppel. -p. 76.
Penicillin Therapy in Subacute Bacterial Endocarditis. B.M. Wagner. -p. 84.
Non-Atheromatous Lesions of Coronary Arteries. M. Plotz. -p. 91.
Iatrogenic Factors In Illness. F.R. Drake. -p. 103.

Castle's Intrinsic Factor in Human Stomach.—Landboe-Christensen and Plum made dried powdered preparations from the fundal and from the pyloric parts of the wall of the human stomach. Feeding of 100 Gm. of dried powdered and defatted stomach wall from the anatomic fundal part of the human stomach to a patient with pernicious anemia produced a striking therapeutic effect. This demonstration of high antipernicious anemia activity of human fundus powder agrees with the observations of Fox and Castle and corresponds with the localization of the pathologic changes in the stomach of patients with pernicious anemia. The effectiveness of human fundus powder is in contrast, however, to the total ineffectiveness of hog fundus. The feeding of 80 Gm. of powdered stomach wall from the pyloric part of the human stomach to a second patient with pernicious anemia produced a moderate therapeutic effect. The effect was less than in the case treated with fundus powder. The authors conclude that antipernicious anemia activity occurs not only in human fundal glands, but also in human pyloric glands.

Experimental Heat Pyrexia.—Daily and Harrison use the term heat pyrexia synonymously with heatstroke. They produced heat pyrexia in dogs, rats and mice by exposure to high environmental temperatures. Except for differences related to the sweating mechanism, and the more rapid course of events in smaller animals, the clinical picture of heat pyrexia in animals resembles closely that seen in man. On the basis of the studies in animals, the author suggests a treatment for human subjects with heat pyrexia. If the patient is comatose, or if body temperature is above 41 C. (106 F.), he should be immersed in ice water. Milder instances may be treated by evaporative cooling. The oral temperatures should be followed minute by minute during the process of cooling. At an oral temperature of about 38.5 C. (101 F.) the patient should be moved to a tub of water at about 38 C. After the body temperature has stabilized at a normal level, hydrotherapy may be discontinued. If manifestations of shock—gray skin, slow filling of blanched areas, poor filling of veins behind a tourniquet and severe hypotension—are present, infusions must be given with great caution, the venous pressure, state of breathing and breath sounds being continously observed. Rapid digitalization is probably indicated if pulmonary edema or rising venous pressure develop. Oxygen therapy may be valuable when either peripheral failure or pulmonary edema is present. The patient's temperature must still be watched after the emergency state has passed. Attention should be given to fluid and electrolyte requirements.

Thiouracil and Propylthiouracil in Management of Thyrotoxicosis.—Grauer and his associates report the clinical effects and the laboratory response to thiouracil and propylthiouracil observed in 100 thyrotoxic patients treated over a period of almost three years. The galactose thyroid function test was helpful as a therapeutic guide and as a diagnostic supplement to the basal metabolic rate in 70 per cent of the patients. The proplylactic use of "solubilized" liver as a source of folic acid failed to prevent the occurrence of 1 case of agranulocytosis, 1 case of granulocytopenia and 2 cases of leukopenia in thiouracil-treated patients. Neither the use of pyridoxine intravenously nor large doses of folic acid stimulated granulocytosis. Propylthiouracil is less toxic and more potent than thiouracil and apparently can be used with relative impunity in thiouracil-treated patients. Ten of the 15 thyrotoxic patients treated medically with thiouracil showed a remission of from seven to twenty-three months. The presurgical preparation of thyrotoxic patients with the antithyroid drugs lessens the mortality rate and decreases the period of hospitalization.

American Journal of Pathology, Ann Arbor, Mich.

24:1-234 (Jan.) 1948

Clinical and Pathologic Effects of Nitrogen and Sulfur Mustards in Laboratory Animals. I. Graef, D. A. Karnofsky, V. B. Jager and others.—p. 1.
*Aspects of Evolution of Silicotic Lesions. I. Costero.—p. 49.
True Aneurysms of Mitral Valve in Subacute Bacterial Endocarditis. O. Saphir and E. P. Leroy.—p. 83.
Virus Myocarditis: Pathologic and Experimental Studies. E. C. H. Schmidt.—p. 97.
Histologic Changes in Rickettsialpox. Vera B. Dolgopol.—p. 119.
Studies on Ameboid Motion and Secretion of Motor End-Plates. X. Effects of Slow Nervous Action of Disuse on Structure of Nerve Endings, Neurosomes and Muscle Fibers. E. J. Carey, E. Haushalter, L. C. Massopust and others.—p. 135.
Vascular Proliferations, with Features of Arteriovenous Anastomoses, in Sympathetic Chain of Hypertensive Patients. R. Lattes.—p. 177.
Lesions in Elastic Arteries Associated with Hypertension. C. T. Ashworth and D. M. Haynes.—p. 195.
Alterations of Cerebral Capillaries in Early Stage of Arterial Hypertension. I. M. Scheinker.—p. 211.

Coccidioidomycosis in Animals with Report of New Case in Dog. H. Smith.--p. 223.

Evolution of Silicotic Lesions.—Costero says that earlier descriptions of the microscopic appearance of silicotic lesions are based on the classic staining technics with aniline dyes. He studied 35 cases of pulmonary silicosis with the silver impregnation technics of Rio-Hortega and has described a number of little known structural details, which may contribute to a better understanding of the evolution of the silicotic nodule and which explain presence of those other nonnodular lesions that are constantly observed in the lungs of patients with silicosis. The histologic basis of all lesions induced in the human lung by siliceous dust is proliferation of reticular fibers. These fibers are partially or wholly transformed into collagen and undergo hyalinization and retraction. The silicotic node continues its growth as long as there are reticular fibers; growth is arrested when collagenization is complete. In addition to the typical silicotic nodule there also appear diffuse sclerotic plaques, peribronchial sclerosis and proliferative pleuritis. These three lesions have special characteristics which can be related to the different types of lymphatic drainage in each region; however, their histogenesis, structure and evolution are similar to those of the typical silicotic nodule.

American Review of Tuberculosis, New York

57: 1-114 (Jan.) 1948

Chronic Tuberculous Mediastinitis and Mediastinal Lymphadenitis: Report of 2 Cases Illustrating Certain Complications with Surgical Measures for Their Relief. A.H. Aufses and H. Neuhof.-p. 1.
American Association for Thoracic Surgery. Report of its Meeting on May 28, 29 and 30, 1947. H.H. Meade Jr. -p. 18.
Chemotherapy of Pulmonary Tuberculosis. J.A. Kolmer. p. 25.
Antibiotic and Chemotherapy of Tuberculosis. H. McLeod Riggins and R.P. Gearhart. -p. 35.
Streptomycin Resistant Tubercle Bacilli. Their Development During Streptomycin Therapy of Pulmonary Tuberculosis. M.H. Fisher. -p. 53.
Sensitivity of Tubercle Bacilli to Streptomycin: In Vitro Study of Some Factors Affecting Results in Various Test Media. M.W. Fisher. p. 58.

Cincinnati Journal of Medicine

28:791-872 (Dec.) 1947

Report of Epidemic of Atypical Pneumonia in Children with Observations on Cold Agglutination Titers. Rose G. Ames.—p. 791.
Psychiatry for the Millions. C. Binger.--p. 802.

Delaware State Medical Journal, Wilmington

19:229-262 (Dec.) 1947

Ureteral Calculi with Symptomatology Referable to Other Organs. E. L. Stambaugh. -p. 229.

20:1-20 (Jan.) 1948

Gastric Neurilemmoma: Report of 4 Cases. H. S. Byers and J. W. Howard. -p 1.
Perineal and Vaginal Total Cystectomy. B. S. Vallett. -p. 6.
Kernicterus: Review of Literature, with Report of 2 Cases. G. N. Eriksen Jr. -p. 7.
Rat-Bite Fever Due to Streptobacillus Moniliformis. C. R. Donoho, E. G. Scott and J. F. Flanders. -p. 11.

Endrocrinology, Springfield, Ill.

41:437-526 (Dec.) 1947. Partial Index

Pituitary and Carbohydrate Metabolism of Brain. M. Reiss and D. S. Rees.—p. 437.
Tissue Changes and Sodium Balance in Pantothenic Acid-Deficient Rats. A. J. McQueeney, L. L. Ashburn, F. S. Daft and R. Faulkner.—p. 441.
Studies on Bioassay of Hormones. R. I. Dorfman.—p. 451.
Metabolism of Steroid Hormones: Studies on 17-Ketosteroids and Androgens. R. I. Dorfman, B. N. Horwitt, R. A. Shipley and others.—p. 470.
•Effects of Vitamin A Deficiency on Thyroid Function Studied with Radioactive Iodine. M. B. Lipsett and R. J. Winzler.—p. 494.
Ovarian Influence on Response of Anterior Pituitary to Estrogens. J. T. Bradbury.—p. 501.

42:1-76 (Jan.) 1948. Partial Index

Studies on Bioassay of Hormones. R. I. Dorfman.—p. 1.
Metabolism of Some Chemical Degradation Products of Estrogens: Westerfeld's Lactone, Bis-Dehydro-Doisynolic Acid, Estrololactone and Beta-Estradiol. A. Segaloff.—p. 15.
Viscosimetric Determination of Hyaluronidase Content of Spermatozoa. D. A. Sherber, C. H. Birnberg and R. Kurzrok.—p. 20.
Variables Affecting Assay of Insulin. L. I. Pugsley and Sybil Hampton.—p. 31.
Chemical Histology and Cytology of Pineal Body and Neurohypophysis. G. B. Wislocki and E. W. Dempsey.—p. 56.

Vitamin A Deficiency and Thyroid Function.--The lack of agreement concerning the effects of vitamin A deficiency on thyroid function induced Lipsett and Winzler to investigate this problem with the use of radioactive iodine (I^{131}) as a tracer. They found that despite the increase in size of the thyroid glands of the viatmin A-deficient rats the total uptake of radioactive iodine was the same as in the control animals. In vitamin A deficiency the percentage of inorganic I^{131} in the thyroid gland reached higher than normal values and decreased more slowly than in the controls. Vitamin A deficiency decreased the rate of formation of thyroxine. These results indicate that iodine metabolism is abnormal in the vitamin A-deficient rat.

Illinois Medical Journal, Chicago

93:1-64 (Jan.) 1948

Pulmonary Complications Due to Endobronchial Foreign Bodies. P. H. Holinger, A. H. Andrews Jr. and G. C. Anison.—p. 19.
Meningococcic Infections. W. M. Whitaker.—p. 24.
Present Status of Penicillin in Dermatology--A Resume. N. C. Barwasser.—p. 31.
Continuity Metastases. F. Hambrecht and E. A. Crowell. --p. 38.
More Common Causes of Failure in Treatment of Varicose Veins. J. R. Merriman and B. Fitzgerald.—p. 41.

Journal of Clinical Investigation. Boston

27: 1-164 (Jan.) 1948

Renal Plasma Flow and Sodium Reabsorption and Excretion in Congestive Heart Failure. R. Mokotoff, G. Ross and L. Leiter. —p. 1.
Effect of Exercise on Cardiac Output and Pulmonary Arterial Pressure in Normal Persons and in Patients with Cardiovascular Disease and Pulmonary Emphysema. J. B. Hickam and W. H. Cargill. —p. 10.
Study of Human Myogram. Study of Normals, and of Patients with Addison's Disease, Thyrotoxicosis and Progressive Muscular Atrophy. R. L. Swank and Grace E. Bergner. —p. 24.
Effect of Tetraethylammonium on Small Bowel of Man. W. P. Chapman, J. B. Stanbury and C. H. Jones. —p. 34.
•Prothrombin Response to Parenteral Administration of Large Doses of Vitamin K in Subjects with Normal Liver Function and in Cases of Liver Disease: Standardized Test of Estimation of Hepatic Function. P. N. Unger and S. Shapiro. —p. 39.
Renal Regulation of Acid-Base Balance in Man. R. F. Pitts, W. D. Lotspeich, W. A. Schiess and J. L Ayer. —p. 48.
Exchanges of Sodium and Potassium in Famili

Periodic Paralysis: T. S. Dahowski, J. R. Elkinton, B. A. Burrows and A. W. Winkler. —p. 65.
Transfers of Cell Sodium and Potassium in Experimental and Clinical Conditions. J. R. Elkinton, A. W. Winkler and T. S. Danowski. —p. 74.
Studies in Serum Electrolytes. XV. Calcium-Binding Property of Serum Proteins (Multiple Myeloma, Lymphogranuloma Venereum and Sarcoidosis). A. J. Rawson and F. W. Sunderman. —p. 82.
Serum Precipitable Iodine Concentrations During Pregnancy. M. Heinemann, C. E. Johnson and Evelyn B. Man. —p. 91.
Studies of Hemophilia. II. Assay of Antihemophilic Clot-Promoting Principle in Normal Human Plasma with some Observations on Relative Potency of Certain Plasma Fractions. B. Alexander and Greta Landwehr. —p. 98.
*Liver Involvement in Infectious Mononucleosis. A. S. Evans. —p. 106.
Study of Disappearance of Congo Red from Blood of Non-Amyloid Subjects and Patients with Amyloidosis. P. N. Unger, M. Zuckerbrod, G. J. Beck and J. M. Steele. —p. 111.
Chemical, Clinical and Immunologic Studies on Products of Human Plasma, Fractionation: XXXIV. Comparative Studies on Nutritive Value of Orally and Intravenously Administered Human Serum Albumin in Man. R. D. Eckhardt, Jessica H. Lewis, T. L. Murphy and others. —p. 119.
Effects of Intravenous Injection of Concentrated Human Serum Albumin on Blood Plasma Ascites and Renal Functions in 3 Patients with Cirrhosis of Liver. A. J. Patek Jr., H. Mankin, H. Colcher and others. —p. 135.
Osmotic Factors Influencing Formation of Ascites in Patients with Cirrhosis of Liver. H. Mankin and Alice Lowell. —p. 145.
Variations in Blood Pressure Response to Repeated Administration of Tetraethyl Ammonium Chloride. J. E. Levinson, M. F. Reiser and E. B. Ferris Jr. —p. 154.
Nature of Cold Pressor Test and Its Significance in Relation to Neurogenic and Humoral Mechanisms in Hypertension. M. F. Reiser and E. B. Ferris Jr. —p. 156.

Vitamin K Tolerance Test and Hepatic Function.—This study by Unger and Shapiro is an extension of the study of Shapiro and Richards embodying the principle of imposing a load on the liver by the parenteral administration of large doses of vitamin K. This same principle is utilized in other liver function tests such as sulfobromophthalein sodium retention, bilirubin clearance, dextrose tolerance and galactose tolerance tests. Reaction to injection of vitamin K is correlated in patients with hepatic disease and in normal controls with the results of other liver function tests and liver biopsy or postmortem observations. A standardized vitamin K tolerance test estimating the prothrombin response to parenteral administration of large test doses of vitamin K has been used. One hundred and thirteen tests were made on 110 persons. Of these, 47 were interpreted as negative, 9 doubtful and 57 positive. The authors found the test to be a sensitive indication of hepatic function. It is of considerable sensitivity in measuring hepatic function of prothrombin formation and serves as a good index of the presence or absence of hepatic disease. Excellent correlation with clinical observations indicative of impaired hepatic function were obtained.

Involvement of Liver in Mononucleosis.—Evans compared results of the cephalin-cholesterol flocculation test in the serum of patients with infectious mononucleosis without jaundice and with results of other liver function tests. Serial determinations were made in 19 consecutive cases of infectious mononucleosis without jaundice. Results indicate that demonstrable hepatic impairment occurs in many such cases. The cephalin cholesterol flocculation test may be a more sensitive indicator of this disturbance than the thymol turbidity test. Use of the cephalin cholesterol flocculation and the thymol turbidity tests may be helpful in distinguishing infectious mononucleosis from uncomplicated upper respiratory infections. The author directs attention to the hepatic involvement in infectious mononucleosis and infectious hepatitis.

Journal of Experimental Medicine, New York

87:87 -174 (Feb.) 1948

Lethal Effect of Relative Humidity on Air-Borne Bacteria. E. W. Dunklin and T. T. Puck.—p. 87.
Nutrition of Host and Natural Resistance to Infection. III. Conditions Necessary for Maximal Effect of Diet. H. A. Schneider.—p. 103.
Experiments on Role of Chicken Mite, Dermanyssus Gallinae, and Mosquito in Epidemiology of St. Louis Encephalitis. Margaret G. Smith, R. J. Blattner, Florence M. Heys and A. Miller.—p. 119.
Carcinogenicity of Certain Derivatives of p-Dimethylaminoazobenzene in Rat. J. A. Miller and E. C. Miller.—p. 139.
Influence of Available Fluid on Production of Experimental Hemoglobinuric Nephrosis in Rabbits. J. J. Lalich.—p. 157.
Renal Athrocytosis and Intracellular Digestion of Intraperitoneally Injected Hemoglobin in Rats. L. J. Rather.—p. 163.

J. of Investigative Dermatology, Baltimore

9:277—338 (Dec.) 1947

Fungistatic Properties of Salicil and Related Compounds. B. Heinemann. -p. 277.
Skin Sensitization to BAL. T. Cornbleet. -p. 281.
Absence of Effect of 2,4-Dichlorophenoxyacetic Acid (2,4-D) on Certain Fungi in Culture. H. Beerman. -p. 283.
Arterioles of Skin in Essential Hypertension. E. M. Farber, E. A. Hines Jr., H. Montgomery and W. McK. Craig. -p. 285.
Acanthosis Nigricans: Analysis of Data in 22 Cases and Study of Its Frequency in Necropsy Material. R. R. Kierland. -p. 299.
Sunburn-Protecting Effect of Para-Aminobenzoic Acid. S. Rothman and A. B. Henningsen. -p- 307.
Multiple Budding in Sporotrichum Schenckii Matruchot. S. B. Salvin. -p. 315.
Eczema Vaccination: Report of 2 Cases with Review of Literature. Kathleen A. Riley and J. L. Callaway. -p. 321.
Allergen of Human Dander Present in Skin of General Body Surface. F. A. Simon. -p. 329.

Journal of Nat. Cancer Inst., Washington, D. C.

8:45-90 (Oct.) 1947

Inhibition of Cathepsins of Normal Calf Spleen and Thymus. Mary D. Mayer and Antoinette Greco. -p. 45.
Subcutaneous Sarcomas in Mice Implanted with Hydrocarboncholesterol Pellets. M. B. Shimkin and Rose S. Wyman. -p. 49.
Vascular Reactions of Normal and Malignant Tissues in Vivo: II. Vascular Reaction of Normal and Neoplastic Tissues of Mice to Bacterial Polysaccharide from Serratia Marcescens (Bacillus Prodigiosus) Culture Filtrates. G. H. Algire, Frances Y. Legallais and Helen D. Park. -p. 53.
Pulmonary Tumor Induction by Transplacental Exposure to Urethane. C. D. Larsen. -p. 63.
Enzymatic Hydrolysis of Homologous Amino Acid Amides in Normal and Neoplastic Tissues. M. Errera and J. P. Greenstein. -p. 71.
Note on Benzoylargininеamidase Activity in Extracts of Rat Liver and Hepatoma. J. P. Greenstein and Florence M. Leuthardt. -p. 77.
Effects of Methylcholanthrene in Pregnant Mice. L. C. Strong and W. F. Hollander. -p. 79.
Procedure for Fixation, Staining and Mounting of Whole Mounts from Tissue Cultures Grown in Carrel D 3.5 Flasks. W. R. Earle. -p. 83.

Maine Medical Association Journal, Portland

38:283-312 (Dec.) 1947

Surgical Diseases of Gall Bladder and Diagnosis. W. A. Clapp.—p. 283.
American Medicine in Transition. E. F. Stegen.—p. 288.

39:1-24 (Jan.) 1948

Allergy and Skin Disease. M. A. Vickers.—p. 1.
Some Aspects of Pediatric Allergy. E. S. O'Keefe,—p. 3.

Military Surgeon, Washington, D. C.

102:3-84 (Jan.), 1948. Partial Index

Some Influences of Military Medicine upon War. C. A. Swanson. —p. 12.
*Current Problems in Aviation Medicine. M. C. Grow. —p. 14.
Introduction to Military Medicine. E. E. Hume. —p. 17.
Physical Medicine in Marine Hospital. R. L. Waugh. —p. 24.
Aviation Medicine is Industrial Medicine. L. D. Carson. —p. 27.
Medical Service in Reinforcement Installations in E. T. O. A. Laird. —p. 29.
Newer Aspect of Aviation Neuropsychiatry. M. N. Walsh. —p. 33.
Healed Dissecting Aneurysm of Aorta with Signs of Aortic Insufficiency: Case Report. C. G. Spicknall and C.H. Binford. —p. 47.
Penicillin and Streptomycin Precursors. (Their Probable Source and Derivation). R. de Rohan Barondes. —p. 50.
Treatment of Decubitus Ulcers with Fibrin Foam; Preliminary Report. I. S. Cooper and T. I. Hoen. —p. 55.
Benzedrine Psychosis: Report of Case. J. M. Schneck. —p. 60.

Current Problems in Aviation Medicine.--Grow states that new methods of propulsion, jet and rocket engines, which make possible flight at hitherto unattainable altitudes and at supersonic speeds, have brought with them the problem of supplemental oxygen. Above 42,000 feet (12.8 kilometers) 100 per cent oxygen must be supplied under pressure. This so-called " pressure breathing" is necessary for unpressurized cockpits and cabins. An alternative is to seal the cabin or the cockpit and introduce a maximum of oxygen and nitrogen under pressure to supply the pilot with an atmosphere equivalent to a lower altitude. Cabin pressurization is now included in Air Force specifications. Extreme cold at high altitudes requires some form of cabin heating, but the temperature control is further complicated by the fact that at supersonic speeds the friction of air on the surface of the aircraft increases the temperature inside the aircraft, so that it may be necessary to refrigerate rather than heat the cabin. Another great problem is acceleration experienced in rapid takeoff of high speed aircraft. Research is required to solve these many problems.

Nebraska State Medical Journal, Lincoln

33:1-36 (Jan.) 1948

Management of Difficult Labor. T. K. Brown.—p. 3.
*Cancer Potential in Involuting Organs. R. J. Crossen. —p. 8.
Treatment of Certain Serious Infections in Newly-Born Infant. P. J. White.—p. 13.
Management of Colles' Fracture and Its Complications. W. W. Bartels.—p. 18.

Cancer Potential in Involuting Organs.--Crossen discusses potential danger of development of cancer in the involuting uterus and ovaries and indicates that primary ovarian carcinoma is the most insidious of the pelvic cancers and the one most frequently overlooked until it has reached a hopeless stage. To reduce deaths from carcinoma of the ovary the author recommends removal of the involuting ovaries whenever the abdomen is opened in the age period of involution (42 or later). Radical surgical procedures instead of conservative measures in noncancerous conditions, which occur in the age of involution, such as uterine myoma, pelvic endometriosis, nonmalignant ovarian enlargements and the chronic inflammatory lesions of uterus and adnexa, are recommended. With regard to prevention of cancer in the endometrium, the author states that circumstantial evidence points to the prolonged action of endogenous estrogen after the menopause as an important factor. He believes that it is better to stop estrogenic activity at approximately age 50, or sooner, if the periods are abnormal, rather than run the risk of continued endometrial stimulation at a time in life when the endometrium should be atrophic. This can be done by radium therapy, and early carcinoma can be ruled out by curettage. Warning is given with regard to the use of estrogenic hormones in the menopause and in cases of hyperplasia. Large doses of estrogenic substances during menopause are considered unwise. Troublesome symptoms can be controlled by small doses of thyroid plus phenobarbital.

Occupational Medicine, Chicago

4:253-358 (Sept.) 1947

Industrial Medicine in Sweden and in United States. Comparative Practices. S. Forssman.—p. 253.
Medical Testimony in Ontario. D. J. Galbraith.—p. 262.
Obtaining Qualified Medical Testimony. G. N. Edson.—p. 267.
Contribution of Industrial Medical Records. A. G. Kammer.—p. 271.
Need in Workmen's Compensation for Scientific Proof in Medicolegal Controversies. T. C. Waters.—p. 274.
Committee on Medical Testimony. Minnesota Plan. W. G. Workman.—p. 280.
Role of Research in Physical Medicine. D. Y. Solandt. —p. 288.
General Practitioner as Adjunct to Industrial Surgeon. F. E. Poole.—p. 293.
Hazard of Phenylmercuric Salts. L. H. Cotter.—p. 305.
Proper Shoes and Shoeing. F. R. Ober.—p. 310.
Anatomy of Foot and Examination for Its Disorders. R. J. Joplin.—p. 314.

Southern Surgeon, Atlanta, Ga.

14:1-60 (Jan.) 1948

Popliteal Varices Simulating Baker's Cyst. M. Moore Jr.—p. 1.
Common Duct Obstruction Relieved by Injection of Topical Anesthetic into T Tube. W. R. Glenn and W. H. Hill.—p. 3.
Problem of Carcinoma of Colon in Southeast. J. L. Martin.—p. 7.
*Congenital Extrinsic Duodenal Obstruction in New Born: Report of 2 Cases. J. S. Stewart.—p. 15.

Duodenal Obstruction in the Newborn.—Stewart directs attention to the high mortality in congenital duodenal obstruction of the newborn and shows that it is always associated with abnormalities of position and fixation of the intestines. He reviews the embryologic stages of rotation of the intestines and in particular of the midgut, in an attempt more clearly to understand the anatomic arrangement of the intestines which is found when there has been interference with normal rotation. He demonstrates the importance of delivering the intestines onto the abdomen as a technical step in the surgical managament of this type of obstruction. Vomiting is the chief complaint in intestinal obstruction of the newborn. Abdominal distention is not a symptom; the only distention that is usually seen is that of the stomach itself, and then only when it has not emptied itself by vomiting. The absence of abdominal distention is probably the chief reason for delay in diagnosis, the physician being loath to make a diagnosis of intestinal obstruction in the absence of something that he can see or feel. The differential diagnosis between hypertrophic pyloric stenosis and extrinsic duodenal obstruction is that the former seldom occurs before the second week of life and bile does not appear in the vomitus, whereas in the latter vomiting begins early, even on the first day, and the vomitus usually contains bile. The authors describe 2 hitherto unpublished cases of extrinsic duodenal obstruction in the newborn.

Book Notices

A Practical Textbook of Leprosy. By R. G. Cochrane, M.D., Ch.B., F.R.C.P., Principal, Missionary Medical College, Vellore, S. India. With a foreword by George R. McRoberts, C.I.E., M.D., F.R.C.P. Oxford Medical Publications. Fabrikoid. Price, $11.50. Pp. 283, with 186 illustrations. Oxford University Press, 114 Fifth Ave., New York 11: Amen House, Warwick Square, London, E. C. 4, 1947.

Dr. Cochrane has been an outstanding student of leprosy for many years, having had large experience with clinical, administrative and research phases of this disease. Scarcely any one has had better opportunity to become familiar with all aspects of the infection. This large experience has nearly all been in British India, and throughout the book this limitation is reflected.

Of the twenty-two chapters, six are devoted to treatment, two to prevention, and the remaining fourteen cover the other fields of interest. It may be said that this is a very useful volume; indeed it would be indispensable for those required to deal with the problem on any considerable scale and of great value to the physician called on but seldom to be responsible for the care of cases. From the point of view of public health it may be said the author is progressive and sound. He advocates dealing with cases on a rational basis, considering the clinical type and the danger of infection from the individual case and the environment in which the patient is to live. While he believes in the great danger of infection in childhood, he recognizes that the danger may exist into the period of youth. He believes that the key to successful preventive measures is to be found in avoiding exposures of children. The author objects to use of the word "leper" and hopes that the book will aid in dispelling the widespread repugnance to the disease which even some physicians entertain. The chapter on pathology deals largely with early lesions and the subject as related to clinical changes and immunologic phenomena. The author does not accept the view that there is a recognizable primary or initial lesion.

Leprolin, or lepromin, about which so much is being written, Cochrane regards as not of importance in diagnosis. However, he considers a positive reaction as an evidence of successful tissue defense, therefore of prognostic importance. There is a useful and detailed account of the technic of taking specimens from cutaneous lesions for microscopic examination, but the illustration shows a skin incision of much greater extent than that required to obtain necessary material. There is a needed caution about regarding the nose as a place for securing specimens for early diagnosis and a warning respecting nonpathogenic acid-fast bacilli likely to be found in the nose. There is a timely warning in regard to "enlarged" nerves and a caution that when in doubt it is better not to regard the nerve as enlarged. The author discourages the use of the expression "incubation period," preferring to use "latency."

In these days when so much thought is being given to psychosomatic medicine one should not be greatly surprised to find the author laying stress on the importance of Christian faith on the part of the doctor as well as on the part of the patient, but this attitude does not blind him to the need for rational therapy. Dr. Cochrane recognizes the tendency of the disease to undergo spontaneous arrest or cure, but he also believes in the use of therapeutic agents. He considers chaulmoogra oil the most useful. Although in the text the author speaks of chaulmoogra oil as the sheet anchor in therapy, in the foreword Dr. George R. McRoberts, professor of medicine at Madras, states that "too much success has been claimed for chaulmoogra oil and its derivatives, and irresponsible optimism with regard to their value has deflected attention from the acute need for more active search for effective chemotherapeutic weapons." The author is well acquainted with the newer drugs in use; however, he states that not enough experience has been had with "promin" and "diasone" for a final appraisal of these drugs. The surgical management of complications is fully discussed. He thinks that patients should be treated in general hospitals when circumstances do not demand or warrant special institutional care. Considerable space is given to reactions that occur during the course of the disease. There is some evidence of careless proofreading—thus we find Langham's where Langhans' is intended. In a legend under an illustration, a lesion is designated as on the left back whereas it is on the right; specific names are not italicized and sometimes not capitalized. On page 41 it is stated that lepromin cannot be standardized, while on page 42 it is said to be difficult to standardize. There are a few other points to which exception may be taken. The date of the "black death" is given as 1340. The one usually accepted is 1348. Some therapeutic agents are referred to by trade names.

A Neuro-Vascular Syndrome Related to Vitamin Deficiency. Door Hendrik Smitskamp. Academisch proefschrift ter verkrijging van de graad van Doctor in de geneeskunde aan de Universiteit van Amsterdam. Paper. Pp. 111, with illustrations. Scheltema & Holkema's Boekhandel en Uitgeversmaatschappij N.V., Rokin 74-76, Amsterdam, 1947.

From his experience in the careful study of 347 cases of burning and painful sensations in the extremities, loss of vision and signs of disturbance of the vestibular apparatus occurring in European prisoners of war interned by the Japanese in Java, the author believes that he has uncovered a new syndrome mainly due to a deficiency of the vitamin B components. It is to be distinguished from the three main groups of vitamin B deficiencies; beriberi, pellagra and hyporiboflavinosis. It is thought most probably to be due to a deficiency of pantothenic acid, in combination with an unusual composition of the diet. Ocular changes occurred in 42.8 per cent of the patients and consisted of the development of scotomas, blurring of vision and occasionally an irreversible optic atrophy. The otoneurologic aberrations occurred in 27.8 per cent of the patients and were characterized by complaints of vertigo, loss of hearing and hyperexcitability of the vestibular apparatus. This symptomatology is supposed by the author to be caused by a dysfunction of the autonomic nervous system. The lesions are probably located in the sympathetic ganglions and perhaps in higher centers of the cord and brain. The arguments in favor of naming this a syndrome are cogent and helpful in straightening out the confusion that exists regarding beriberi and the allied conditions Those interested in nutrition, ophthalmology and otology will find much of value in this well written monograph.

Hematomas subdurales: Generalidades, sintomatologia, bibliografia. Por el Dr. Alfonso Asenjo. Second edition. Paper. Price, 300 pesos. Pp. 251, with 49 illustrations. Stanley, Manuel Rodriguez N. 852, Santiago, Chile, 1947.

In this small book fifty of the two hundred and fifty pages are occupied by a lengthy bibliography. The remainder contains extensive extracts from the literature, numerous case histories and statistics concerning the 67 cases in the author's personal experience. From this material the author finds that about 1.5 per cent of traumatisms of the head are complicated by a hematoma. Ipsilateral symptoms were observed in 12 instances, confusion or obnubilation in 40, papillary edema in 16, motor pareses in 45 and epileptic attacks in 20. There was usually a slight increase in pressure of the spinal fluid, xanthochromia and slight pleocytosis. The electroencephalographic findings were not helpful. Arteriography was not used. Radiography was found useful. One might find signs of intracranial hypertension in children, displacement of the pineal body, old fractures or, infrequently, unusual calcifications. Ventriculography demonstrated displacement, distortion of the ventricles or partial lack of filling of ventricles or subarachnoid space. In general the observations in this report vary only in minor statistical details from generally accepted opinions.

Mainspring: The Grassroots Story of Human Progress, What It Means to You and Me and How Not to Prevent It. By Henry Grady Weaver. Paper. Price, $1. Pp. 236, with illustrations by Robert F. Irwin. Talbot Books, 6432 Cass Ave., Detroit 2, 1947.

This paper bound pamphlet is a polemic. Mr. Weaver, who describes himself as a businessman, states in a note that he believes certain books should be rewritten and given wider circulation. This he attempts in "Mainspring" with Miss Rose Wilder Lane's "The Discovery of Freedom."

Mr. Weaver has filled his book with many ideas, most of them of the level of the cliché. He falls into the trap of all venturers into a new field—he attributes all things to a single "cause." In his view the only important problem in social relations is the understanding of human energy, which he does not define.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

SMALLPOX VACCINATION

To the Editor:—In accordance with Navy practice, I maintain that if the result of vaccination is "primary" (or "take") the patient should be revaccinated seven to ten days later in order to ascertain whether the original vaccination stimulated complete or partial immunity. If the second vaccination results in an "accelerated" reaction, I should revaccinate until an immune response occurs. I contend that all patients who do not show an "immune" reaction should be revaccinated at seven to ten day intervals until an "immune reaction" occurs. My colleagues contend that a "primary" reaction (one vaccination) is adequate for protection. Please discuss.

M.D., California.

ANSWER.—Theoretically your contention is correct that a person who is not susceptible to an attack of smallpox should have an immune reaction when vaccinated with potent smallpox vaccine. Actually the procedure which you suggest is neither practical nor necessary. If an unvaccinated susceptible person is vaccinated within three days of exposure to smallpox and the vaccination is successful it is almost absolutely certain that smallpox will not develop. Instances of this kind have been observed repeatedly in a smallpox hospital.

A successful vaccination in a person who has not been vaccinated successfully at any previous time is termed a "primary vaccination." If vaccination is repeated there should be a reaction of immunity. The duration of immunity resulting from a primary vaccination cannot be foretold accurately. Ordinarily a primary vaccination will afford protection against smallpox from five years to life. A loss of immunity can be determined by obtaining either another successful vaccination or an accelerated reaction. In considering an immune reaction it must be remembered that a proper interpretation rests on the knowledge that the vaccine lymph used in the procedure is potent. A "no take" or failure to secure any reaction from a vaccination should not be confused with an "immune reaction."

SPIDER VARICOSITIES

To the Editor:—Please discuss obliteration of the superficial, spider nevus type of varicosities that some women have on their legs. Is there a satisfactory intradermal injection?

James I. Knott, M.D., San Diego, Calif.

ANSWER.—If the central pool can be found this may be injected; however, others may appear and the results are generally unsatisfactory. Besides, there is danger of sloughing. The experienced operator soon learns to let this variety alone.

INCIDENCE OF CANCER

To the Editor:—What are the latest figures on the incidence of cancer in relation to the organs of the body? On what proof is cancer metastasis based?

Floyd Thurber, M.D., Hollywood, Calif.

ANSWER.—See Reprint 2537 from the *Public Health Reports,* entitled "Illness from Cancer in the United States," by Harold F. Dorn; also see the New York State Department of Health Annual Report, 1944, volume 1.

Cancer metastasis is based on the presence in regional lymph nodes and distant organs of tumor foci having histologic features similar to the primary growth.

REPIGMENTATION OF HAIR

To the Editor:—A diabetic woman aged 74 seems to experience a change in the color of her hair from gray to that normal in her middle age after taking insulin. Are there other such cases on record? She is not taking other medicament and is not using hair dye or rinse.

Elmer W. Clarke, M.D., Norton, Mass.

ANSWER.—Apparent repigmentation of gray hair is observed not infrequently in diabetes mellitus after good nutrition and control of unbalanced sugar metabolism are restored. The reason for it is not known. Theories to account for it are: (1) improvement in nutrition and hydration; (2) correction of avitaminosis caused by diuresis or restriction of dietary intake; (3) restoration of endocrine balance, which has been altered along with the progress of the diabetes, and (4) xanthochromia affecting the color of the hair in much the same manner as it colors the skin a faint orange when diabetic diets are used, possibly by carotene which is not metabolized to yield vitamin A, possibly by deposit of other-pigments such as those contained in butter and cream.

CLINITEST TABLETS

To the Editor:—Is the tablet method ("clinitest tablets," made by Ames Company, Inc., Elkhart, Ind.) acceptable to insurance companies in testing for urinary sugar? Is this method as reliable as using Benedict's or Fehling's solution?

R. C. Sadler, M.D., Whiteville, N. C.

ANSWER.—The use of "clinitest tablets" is approved by a number of the larger life insurance companies. Recently Blatherwick and Dworkin of the Metropolitan Life Insurance Company laboratory (Blatherwick, N. R., and Dworkin, J. H.: A Rapid Test for Albumin and Sugar in the Same Measured Sample of Urine, *J. Lab. and Clin. Med.* **32**:1042 [Aug.] 1947) have suggested the use of these tablets. Kasper and Jeffrey (Kasper, J. A., and Jeffrey, I. A.: A Simplified Benedict Test for Glycosuria, *Am. J. Clin. Path.*, Tech. Sect. **8**:177 [Nov.] 1944) found that the results obtained with the two methods were comparable. Both reagents contain copper sulfate, with the addition of sodium carbonate and sodium citrate in the case of Benedict's reagent and sodium hydroxide, sodium bicarbonate and citric acid in the "clinitest tablets." Sodium hydroxide is the alkali employed in Fehling's solution. The sodium hydroxide has an additional special use in the "clinitest tablets," since the heat for the reaction is provided by its heat of solution. Mixing is brought about by the evolution of carbon dioxide. In an answer to a query in THE JOURNAL (Oct. 10, 1942, p. 491), checks with Benedict's reagent and "clinitest tablets" were reported as good. The user was cautioned against allowing the tablets to come in contact with the skin. If a simultaneous test for albumin is desired an "albutest tablet" (Ames Co.), which contains sodium molybdate, citric acid and a small amount of effervescent base, may first be employed.

PENICILLIN PREVENTIVELY

To the Editor:—There is a practice among surgeons in this area of giving patients a single massive dose (100,000 to 500,000 Oxford units) of penicillin in isotonic sodium chloride solution (not oil and wax) following elective minor surgery with or without general anesthesia. This is used for the prevention of infection and postoperative complications.

How long will a suitable blood level of penicillin be maintained? Will this therapy prevent postoperative infection or is it a waste of penicillin?

M. D., Kentucky.

ANSWER.—A single dose of penicillin, 100,000 to 500,000 units in isotonic sodium chloride solution would maintain a detectable blood level of penicillin from four to six or eight hours. It is highly questionable whether a single dose of penicillin will prevent a postoperative infection. It would be sounder therapy to continue the injections at intervals of eight to twelve hours for three to seven days in order to prevent susceptible infections.

ROENTGEN THERAPY

To the Editor:—How does roentgen therapy in dermatology work? What does it do to the skin and its disease? Is it cumulative in effect, and if so for how long? Can it be recommended in the acute pyodermas?

M.D., Rhode Island.

ANSWER.—Roentgen rays appear to reduce the activity of cells in all their various functions. Just how this is accomplished is still an unsettled question, some attributing it to an ionization effect, others to a coagulation effect on the protein molecule analogous to the action of heat; still another explanation combines features of the two concepts to account for an altered concentration of intracellular and intercellular fluid. Much depends on the dosage. When the dose of rays is small, the cells are not perceptibly influenced. After a larger dose, there is a temporary increase in cellular division and cellular metabolism. Larger doses act to inhibit mitosis and to induce cellular degeneration, the degree of which depends on the variety of cells and the dose of rays, for tissues vary in their response to radiation. This period of depressed cellular activity is followed by a compensatory phase of hyperactivity and then by a return to normal. Radiations, however, are always injurious to cells which absorb them; the effect of repeated irradiation is cumulative, the degree of accumulation depending on the size of the dose and the interval between treatments.

Desjardins explains the effects of radiation on inflammatory conditions by assuming that "radiation by destroying some of the infiltrating leukocytes causes the protective substances in these cells to be liberated and to be made even more readily available for defensive purposes than when they were in the intact cells. This, and the increase in phagocytosis which follows the disintegration of the cells, represents the main effects of exposure to x-rays and irradiation." The majority of cutaneous diseases represents some form of acute or chronic inflammation with varying degrees of leukocytic infiltration, cellular hyperplasia, hyperemia and proliferation of connective tissue, with or without associated products of cellular degeneration. Herein lies the rationale for radiation treatment of certain diseases of the skin, including particularly the deep seated pyodermas.

"LIPIODOL" IN SPINAL CANAL

To the Editor:-The diagnosis of a ruptured intervertebral disk would be made easier in obscure cases if radiography of the spinal canal with iodized poppy seed oil 40 per cent "lipiodol" was safe. Has any one using this procedure ever attempted to remove the injected iodized oil through a caudal anesthesia needle inserted into the sacral canal and intentionally made to penetrate the dura? Then with the patient in Fowler's position the iodized oil could slowly be withdrawn and replaced with sterile saline solution. If this procedure has not been attempted, is there any reason why it would not work, since the heavier iodized oil will settle to the lowermost portion of the spinal canal?

Michael Carlozzi, M.D., Brooklyn.

ANSWER.—Opaque oil has been removed from the spinal canal by puncture of the dural sac through the caudal canal. It has been removed by trephining the posterior wall of the sacrum and aspirating the dural sac or incising the dural sac. These procedures are not necessary, in that the opaque oil can usually be removed through the lumbar puncture needle utilized for the introduction of the oil.

XANTHINE CONTAINING BEVERAGES IN GOUT

To the Editor:—What is the present feeling in regard to the use of coffee in gout or uric acid diathesis, and what is the recommendation with regard to substitution of caffeine-free coffees?

R. B. Hemphill, M.D., Oak Park, Ill.

ANSWER.--Coffee, tea and cocoa have sometimes been eliminated from the diet of patients with gout because they contain xanthine bases which were assumed to produce an excess of uric acid and an increase in tophaceous deposits. Actually, no increase of true uric acid results from the dietary use of these beverages. Early studies on the conversion of methylated xanthines to uric acid were unreliable because (1) experiments were carried out on rabbits and species of dogs whose chief end product of purine metabolism is allatoin, not uric acid, and (2) methods were not available to differentiate xanthine from other urate substances.

It has now been determined that in human beings the xanthine bases of coffee, tea and cocoa are converted by partial demethylation to methylurates. This methylated derivative reacts, as does uric acid, with phosphotungstic acid and silver preparations to form reduction products which are indistinguishable by colorimetric methods of analysis from uric acid. By use of uricase, a method has been developed to measure urinary uric acid in the presence of methylurates. This uricase method has has shown that ingestion of caffeine, theophylline or theobromine does not increase the excretion of "true uric acid"; neither are methylurates deposited in tophi. Hence, coffee, tea and cocoa are allowed in the diet of patients with gout.

BILATERAL CRYPTORCHISM

To the Editor:—A man aged 21 (weight 194 pounds [88 Kg.], height 68 inches [173 cm.]) with bilateral cryptorchism, first became aware of this when in January 1945 the army induction doctors called it to his attention. The testes cannot be felt in the inguinal canal. There are no evidences of hypogonadism and the patient has normal ejeculations. On two occasions examination of the ejaculatory specimen revealed complete aspermia. Is hormone therapy advisable? Is surgery indicated, since the incidence of tumors in ectopic testes is much greater than in normally situated ones?

Milton Canter, M.D., Brooklyn.

ANSWER.—Unless the patient has some evidence of endocrine dysfunction, there is no indication for any hormonal therapy. A bilateral orchiopexy is indicated.

THROMBOEMBOLISM IN CHILDREN

To the Editor:—The problem of thromboembolism is receiving more and more attention. What are the possible explanations for the rare occurrence of this phenomenon in children as compared to adults, particularly in the surgical patients? Give references regarding relative rates of venous blood flow in children as compared to adults.

M.D., New Jersey.

ANSWER.—The rare occurence of thromboembolism in children as compared to adults has probably never been satisfactorily explained. At present the best explanation seems to be on a morphologic basis. Veins, as arteries, develop sclerosis with age. Just as the arteriosclerotic artery develops spontaneous thromboses due to atheromatous plaques and roughening of the intima, this occurs probably in the major veins also and is the best explanation of why thromboembolism is seen in the older age group. As far as can be determined, there is no difference in the coagulability of the blood in the young and the aged. As far as known there are no data on the rate of venous blood flow in children as compared to adults. In patients with severe peripheral arteriosclerosis there is undoubtedly less blood flowing through the veins of the lower extremities, since there is less blood entering the extremities. The incidence of thromboembolism is probably not really higher in the patients with deficient arterial circulation compared with those with normal arterial blood flow.

SYPHILIS

To the Editor:—On May 22, 1946 I examined a man, aged 42, for employment. Results of his examination were negative but the laboratory reported positive responses to Kolmer (Wassermann), Kahn and Kline tests. He gives no history of venereal infection. Tests of his wife, the second, are negative. I started treatment June 7, 1946, giving him weekly treatments as follows: ten injections of oxophenarsine hydrochloride ("mapharsen") 0.06 Gm.; then six of bismuth subsalycilate, 0.13 Gm.; ten of "mapharsen"; ten of bismuth and five of "mapharsen." During this time his Wassermann, Kolmer and Kline tests have remained positive, and after the last two injections of oxophenarsine hydrochloride he had loose stools. Am I warranted in giving this man any more antisyphilitic treatments? He has had twenty months of continuous treatments.

M.D., Iowa.

ANSWER.—It is unfortunate that in the beginning you did not get a titered serologic test on this patient and then follow him along with a monthly titered test. Moreover, there is even a possibility that this man may have a false positive reaction. One should always be suspicious of low titered reactions. A lumbar puncture should have been done in the beginning but may still be done; be sure that there is no involvement of the central nervous system. He may have an asymptomatic syphilis of the central nervous system. Only after all these precautions have been taken would it be possible to properly evaluate this patient's true situation.

If his lumbar puncture reveals that he has involvement of the central nervous system, it would be well to hospitalize him and give him crystalline penicillin G intramuscularly, 40,000 units every three hours, day and night, for three weeks. On the other hand, if his lumbar puncture reveals normal conditions and if careful examination of the cardiovascular system disclose nothing, it would be considered that the patient has a late latent syphilis and that further treatment is unnecessary.

Heavy metal therapy is more and more looked on with less favor than penicillin therapy. It is true that there are situations in which the former may be used as an accessory treatment, but first dependence is placed on penicillin.

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INDICATIONS FOR THERAPEUTIC ABORTION FROM THE POINT OF VIEW OF THE SURGEON

SAMUEL C. HARVEY, M.D.

New Haven, Conn.

The instances in which the surgeon who does not practice in the field of gynecology has to consider the indications for therapeutic abortion or other interference with the anatomic and physiologic components of pregnancy are few. So much is this the case that no one person is likely to accumulate an experience and knowledge in this subject at all comparable to that of the obstetrician and gynecologist. Nevertheless, the surgeon may at any time find himself in a situation where the well-being of the pregnant mother or the fetus or both are imperiled and a crucial decision must be made.

This may be the case with certain surgical diseases which are urgent or of an emergency nature and require immediate operative intervention in order that both mother and child not succumb, even though this may entail some risk of an abortion. Examples of these are intestinal obstruction, perforation of the intestine, acute appendicitis and massive hemorrhage. Other diseases for which the ultimate therapy is operative, but in which the danger is neither immediate nor great, may be handled conservatively until normal delivery occurs, or at least until a viable fetus can be obtained. In instances of these, as hernia of the abdominal wall or hemorrhoids or varicose veins, the mother may suffer discomfort but no damage from delay. Only rarely and under indications not purely surgical would a therapeutic abortion be advisable in these various situations.

Certain common chronic diseases amenable to surgical therapy may cause some minds to weigh the question of therapeutic abortion, only to dismiss it on serious consideration. As an example, the coincidence of thyrotoxicosis and pregnancy is not unusual and is best treated as it would be were it not complicated by pregnancy, or rather as it would have been before the introduction of thiourea and thiouracil. This last reservation is made until further study has determined the effect, if any, of these drugs on the fetus. In any case, to introduce abortion in a patient with hyperthyroidism would be asking for trouble, and were it necessary for other reasons the toxicity should be obviated by medical or surgical means as indicated in the particular patient, before it is attempted.

Another even larger group of diseases is that of malignant new growths and, of particular pertinence to this discussion, the carcinomas in the female. Those associated with the female organs specifically concerned with reproduction, namely the genitalia and the breasts, comprise approximately one half of the morbidity and mortality in the female of what is commonly known as "cancer," the frequency being divided between the two with a small predominance in the breast. It is with the latter that the surgeon is concerned in this discussion, and particularly when carcinomas of the breast are concurrent with pregnancy or lactation.

Fortunately, this association is relatively rare and for several reasons. Only approximately one third of these tumors of the breast occur during the age when nearly all pregnancies take place, namely from puberty to 45; a second third from 45 to 55 is associated with the menopausal changes, and the last third with the involution that goes on with aging.[1] Of the 4,628 patients operated on for carcinoma of the breast and reported by Stewart W. Harrington,[2] there should have been about 1,500 instances in the child-bearing age when the association with pregnancy might be expected to be frequent. The number and distribution of pregnancies in this group was not known, but there were 92 instances of carcinoma of the breast associated with pregnancy or lactation, or about 2 per cent of all the operations, or approximately 6 per cent of those that may be expected to have been below 45 years of age, in all probability indicating a relatively lower incidence of this lesion in pregnancy and lactation than in those women not carrying a child. This agrees of course with the well established understanding that carcinoma of the breast is more frequent in the nulliparous. However, as Grantley Taylor has shown, while the incidence is not increased in young women, the degree of malignancy is, as indicated by the fact that metastases occur earlier and to a greater degree and that therefore postoperative recurrences take place more promptly. This same situation is exaggerated in the pregnant woman as indicated by Harrington's data,[2] according to which in 88 instances of radical mastectomy for carcinoma during pregnancy or lactation 85 per cent had spread beyond the breast and only 15 per cent not. The survival rates in those having axillary metastases were, at three years, 17.3 per cent and at 5 years 5.5 per cent, while for those with the growth confined to the breast the rates were 65.5 per cent at both three

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Read in a Panel Discussion on Modern Indications for Therapeutic Abortion before the Section on Obstetrics and Gynecology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

[1] Nathanson, I. T.: The Relationship of Hormones to Diseases of the Breast, Surgery **16**: 108-140, 1944.

[2] Harrington, S. W.: Carcinoma of the Breast: Results of Surgical Treatment When the Carcinoma Occurred in the Course of Pregnancy or Lactation and When Pregnancy Occurred Subsequent to Operation (1910 1933), Ann. Surg. **106**: 690-700, 1937.

and five years. Whatever significance this may or may not have as regards therapeutic abortion, it does indicate that the obstetrician and surgeon during pregnancy should examine the breasts frequently and carefully in the hope of detecting a tumor early, when it may be still confined to the breast. If it proves to be malignant, then a radical mastectomy must be done.

Only when these data are at hand should a decision be made as to an abortion. It is clear, as Grantley Taylor[3] has pointed out, in young women that once the malignant lesion is established, therapy of any nature will not change its biologic characteristics, and I think one may include in this the removal of the fetus and placenta. Certainly when there is a spread beyond the "breast" it would be illogical to destroy one life in order to attempt to retrieve a nearly hopeless situation in the parent, particularly in view of the fact that there is no evidence that doing this would in any way change the course of the disease. When the growth has not extended beyond the breast, probably indicative of its relatively lower malignancy, and when the outlook is much more favorable, there is still less reason to terminate the pregnancy, and particularly if it is beyond the third month. There may be adequate reasons for doing so previous to this time, other than malignant disease, but these do not fall within the province of the surgeon.

As regards nursing the baby, it is largely an academic question, for with one breast removed it is unlikely in these days that the remaining breast will be so employed. In fact, it is not certain that it is either beneficial or dangerous. In any case, during pregnancy and lactation it is necessary to follow closely the residual breast, for under these conditions the frequency of involvement is probably somewhat increased.

As regards pregnancy following a radical mastectomy for carcinoma not occurring in conjunction with pregnancy, Harrington's[2] experience is of interest. There were 55 such instances, of which he was able to follow 37. Of these patients 33 lived one or more years after the birth of the baby, and, of the 12 patients who had live babies fifteen or more years previously, 7 were living. He advised those having had carcinoma of the breast not to go through further pregnancies, and if they had children not to nurse them. In fact, there is not sufficient factual information to be certain that this advice is necessary. On the other hand, it might be well for the patient to avoid pregnancy for three or four years subsequent to a radical resection, in order to obviate the possible simultaneous occurrence of a pregnancy and a recurrence. So far this discussion because of its bearing on therapeutic abortion has been governed by the "curability" of established carcinoma of the breast, which involves, so far as is known at the present time, the detection and destruction of the primary focus before spread has occurred. Once this is accomplished, further measures are unnecessary, but if the disease is elsewhere, then the treatment is palliative, in the hope of slowing up its progress and of ameliorating the distressing symptoms. While a "cure" should always be striven for and is an end devoutly to be desired, at the present time in the majority of instances of carcinoma of the breast it still remains true that the therapy is palliative.

For many years it had been suspected that changes of the breast were dependent on ovarian function. With the discovery and intensive study of the estrogens and of their effect on the development of the breast in the experimental animal, particularly the production of "cancer of the breast" in the male mouse of a tumor-susceptible strain, the hope of effecting a cure or of producing palliation by the cutting off of estrogens, or by their "neutralization" with the androgens, has come to the fore. That the former can be accomplished seems extremely unlikely in view of present knowledge, for, as Nathanson[1] said, "the estrogens in themselves are not carcinogenic, but merely provide the substrate upon which an exciting agent may act." Furthermore, while they may have a great deal to do with the initial change from benignity to malignancy, once the growth becomes autonomous and is capable of growing on heterologous transplantation in either male or female animals, it is obvious that changes in either estrogen or androgen are unlikely to destroy it. Nevertheless, the ablation of the testicles or the administration of estrogens in carcinoma of the prostate as initiated by Huggins has demonstrated in many instances at least definite palliation.

Consequently, at the present time there is a recurrent interest in the "sterilization" of the female with carcinoma of the breast, by radiation of the ovaries or by their ablation when cessation of menses has not occurred. As long ago as 1905 Hugh Lett[4] in England reported 99 instances of "incurable carcinoma of the breast in which bilateral oophorectomy was done; with marked improvement in 22 and distinct improvement in an additional 35." These beneficial results he described as "relief of pain, improvement in health, diminution or disappearance of growth, healing of ulcers and prolongation of life." He was probably over-optimistic in his interpretation, and others who followed his lead did not obtain so good results or became discouraged at palliation, which in the end arrived at the same ultimate result.[5] Similar findings are now being obtained in perhaps a third of those patients who are suffering from pain due to metastases to bone. In addition to the cutting down of the production of estrogen in this manner, which is by no means complete, the use of testosterone[6] is being tried out, with apparent beneficial results in some instances.

These attempts at hormonal therapy are as yet experimental and directed at palliation of existing disease. There is no indication at the moment that they will effect "cures" or prevent cancer, and, indeed, in careless hands it is possible that they may do more damage than good. It would be better to leave their use to those having adequate clinical material, sufficient knowledge of these hormones and critical judgment, until the proper indications and methods of application are fully developed.

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[3] Taylor, G. W.: Carcinoma of the Breast in Young Women, New England J. Med. **215**: 1276-1278, 1936.

[4] Lett, H.: An Analysis of Ninety-Nine Cases of Inoperable Carcinoma of the Breast Treated by Oöphorectomy, Lancet **1**: 227-228, 1905.

[5] Taylor, G. W.: Evaluation of Ovarian Sterilization for Breast Cancer, Surg., Gynec. & Obst. **68**: 452-456, 1939.

[6] Adair, F. E., and Herrmann, J. B.: The Use of Testosterone Propionate in the Treatment of Advanced Carcinoma of the Breast, Ann. Surg. **123**: 1023-1035, 1946.

Thoracolumbar Sympathectomy.—The surgical treatment of hypertension had its origin in the pioneer work of Crile, Adson and Craig, Page and Heuer, Peet and others, but it was not until 1940 when Smithwick first reported his clinical studies that an efficient operative procedure was made known.—Hinton, J. W.: *Bulletin of the New York Academy of Medicine*, April 1948.

THERAPEUTIC ABORTION FROM THE POINT OF VIEW OF THE INTERNIST

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From the point of view of the internist, diseases of the cardiovascular system far outweigh any other possible indications for therapeutic abortion. This is a corollary of the fact that pregnancy tends to increase both cardiac output and blood volume. As Burwell[1] has observed, pregnancy produces cardiodynamic changes similar to those which characterize arteriovenous fistula. Within certain limits, these changes are reversible in both instances.

Let us first consider hypertension which grows steadily worse as pregnancy proceeds. This includes hypertension which existed prior to conception, as well as that which appears during gestation. Certain observations[2] have indicated that many women with hypertension, even when they have albuminuria, edema or headache, bear children without immediately discernible ill effects to themselves or their offspring. In such cases, however, the probabilities are that the hypertension is fundamentally benign and that it will abate to a considerable extent after delivery. It is another matter when the diastolic pressure manifests an ever increasing upward tendency, especially during the first trimester. Hypertension of this variety, with a diastolic level rising above 110 mm. of mercury, must be considered actually *or potentially* malignant, and therefore should constitute an indication for abortion. This indication becomes imperative as soon as impairment of the function of either the heart or the kidneys can be demonstrated.

It is well known that women with old cardiac valvular lesions, including mitral stenosis, often bear one or more children uneventfully. In these cases the lesion must be minimal from the dynamic point of view, or the patient must have lived such an elaborately sheltered life that having a baby was the only real work she ever did. In deciding which patients with valvular heart disease should be allowed to go to term, one must consider the age of the patient, how much cardiac hypertrophy she has, evidence of congestive heart failure, past or present, and the mechanism of the heartbeat.

Age need not be discussed, for it is obvious that, other things being equal, the younger the patient, the better her chances.

The amount of cardiac hypertrophy is particularly important. Generally speaking, hypertrophy develops in direct proportion to (1) the degree of mechanical embarrassment produced by the valvular lesion and (2) the extent to which the myocardium was involved in the original inflammatory process. This generalization, however, is beset with disconcerting exceptions which tax the resourcefulness of the cardiologist. Chief among these is the conjunction of a mechanically severe lesion with minimal hypertrophy. If, in addition, the auscultatory signs are misleading or wanting, the disease is virtually undiagnosable by ordinary clinical methods and recourse must be had to special procedures which cannot be described here.

In all cases in which ventricular hypertrophy is present, the amount of the hypertrophy is much more important than the valvular lesion, regardless of its severity or location. It is impossible to overemphasize the old observation that the greatly hypertrophied heart is a severely damaged, and therefore a seriously weakened, heart. Cardiac hypertrophy not only encroaches directly on the myocardial reserve, but also greatly diminishes the efficiency of the heart by increasing the amount of cardiac residual blood. This increase may amount to as much as 1,000 to 1,200 cc., which means, of course, that each systole can do no more than skim the surface of the pool.

The pathologist quickly ascertains the degree of cardiac hypertrophy by weighing the heart, but the clinician must rely on indirect methods. If, in the absence of congestive failure, the heart is demonstrably enlarged, hypertrophy is presumably present, but this is strictly inferential, and, if the hypertrophy is more concentric than eccentric, its extent will always be underestimated. Furthermore, simple hypertrophy alone probably constitutes less of a hazard to the patient than hypertrophy plus an increase in cardiac residual blood. Therefore, in order to improve the clinical estimate of the degree and kind of hypertrophy and to ascertain as accurately as possible the amount of cardiac residual blood, careful measurements of the arm to tongue circulation time must be made. Discounting *the changes in circulation time caused by pregnancy* itself, the greater the prolongation, the larger the risk.

Congestive heart failure which tends to progress in spite of treatment and is characterized by an increase in systemic or pulmonary venous pressure, or both, constitutes a clearcut indication for therapeutic abortion, regardless of whether the failure antedated the pregnancy. If the patient has had congestive failure in the past, as attested by the history, permanent cardiac enlargement and enlargement of the liver, without hepatic pain or tenderness, pregnancy may be allowed to proceed only if extraordinary precautions are taken and the patient is kept under close observation. Some patients with a chronic, nonprogressive form of heart failure, in which there is no increase in venous pressure and moderate edema is the principal manifestation, often tolerate pregnancy surprisingly well.

Some of the disturbances in the mechanism of the heartbeat are dynamically or symptomatically so serious and so intractable that they may constitute an indication for therapeutic abortion. Included among these are acquired auriculoventricular heart block and bundle branch block, and chronic and paroxysmal auricular fibrillation, auricular flutter and ectopic tachycardia, particularly ventricular tachycardia. If the patient also has chronic valvular heart disease, the indication often becomes *urgent. Congenital* auriculoventricular heart block or bundle branch block, if unaccompanied by other lesions, introduces no maternal risk whatsoever.

If acute rheumatic heart disease or subacute bacterial endocarditis develops during pregnancy, the indication for abortion is imperative and immediate, despite the fact that, in the case of the latter, modern chemotherapeutic methods often effect a cure. Fortunately, the incidence of these diseases during pregnancy is extremely low

Before leaving the subject of cardiovascular disease as an indication for therapeutic abortion a few ghosts which seem to survive only in textbooks of obstetri

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Read in a Panel Discussion on Modern Indications for Therapeutic Abortion before the Section on Obstetrics and Gynecology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

1. Burwell, C. S.: The Placenta as a Modified Arteriovenous Fistula Considered in Relation to the Circulatory Adjustments of Pregnancy, Am. J. M. Sc. 195: 1, 1938.

2. Sharkey, J. A., and Hess, C. B.: The Effect of Essential Hypertension on Pregnancy, Am. J. Obst. & Gynec. 52: 672, 1946.

should be laid. There is nothing to substantiate the assertion that the maternal heart undergoes hypertrophy as a result of pregnancy, as any internist who has examined many mothers of many children knows well. Dilatation of the right ventricle occurs under certain circumstances, but it has nothing specifically to do with pregnancy. A pulsation in the veins of the neck is normal when the patient is recumbent. If it occurs in the sitting position, it indicates an increase in systemic venous pressure, which is one of the signs of congestive heart failure. This subject has already been discussed. Geographic location is unrelated to the incidence of rheumatic heart disease, as Army and Navy reports have shown. It has often been said that many pregnant women have "functional" heart murmurs. If a murmur did not function, it could not be heard, and therefore all murmurs are "functional," but some which appear to be endocardial are extracardial. Making the distinction is a problem for the student of physical diagnosis, not for the accoucheur. Finally, digitalis is not indicated in all cases of heart disease or heart failure and must not be prescribed indiscriminately.

In cases of pulmonary tuberculosis, pernicious anemia and diabetes mellitus, abortion may occasionally be indicated, but not as a rule, for the treatment of these diseases is now so successful that pregnancy may safely be allowed to proceed to term. Severe hepatitis or ulcerative colitis may make abortion advisable, but diseases such as leukemia, lymphoma and polyneuritis obviously do not.

PANEL DISCUSSION ON MODERN INDICATIONS FOR THERAPEUTIC ABORTION

S. A. Cosgrove, M. D., N. J., Moderator

Dr. Catherine MacFarlane, Philadelphia: I was much interested in Dr. Harvey's discussion of the need for therapeutic abortion in women with cancer, particularly with cancer of the breast. I was reminded of Dr. Bittner's demonstration some years ago of the milk factor as an agent in the transmission of cancer in strains of susceptible mice. Applying this to women, it would seem that complete elimination of nursing with cancer of the breast or other organs would be indicated. Perhaps this procedure would eliminate the necessity for considering the production of abortion in these women who happen to be pregnant and also have cancer of the breast.

Dr. Marie Pichel Warner, New York: The woman physician is besieged with more requests for abortion for real or imagined therapeutic indications than the male physician. There are many cases in which the indications for therapeutic abortion are not clearly defined. What, for example, should be one's attitude in advising a patient who requests a therapeutic abortion because she had suffered from a depressive state for which she had been institutionalized and had been treated with shock therapy? A normal woman has a strong maternal drive. Is it not possible, then, that the very fact that a woman appeals to a physician for therapeutic abortion is an indication of sufficient mental and emotional imbalance to warrant a therapeutic abortion followed by psychotherapy? The mental reaction and future of the unmarried pregnant woman in terms of personal shame and disgrace to the family, when she is forced to have a child which she places for adoption, should be the subject of serious consideration as a psychiatric indication for therapeutic abortion. There is at present no satisfactory solution to this problem. There is also the problem of the woman of menopausal age who becomes pregnant. She may not have a serious organic indication for therapeutic abortion, but psychologically develops a severe anxiety state about her middle age. When strong fears exist regarding the outcome and delivery at middle age, and her feeling of inability to handle an infant and a belief that her age restricts a normal parent-child relationship, what should be advised? The saddest cases are those of married women who are not yet ready to have babies for economic or other reasons. They have an illegal abortion and then soon after, because of the psychologic reactions, are driven to desire a pregnancy and find that they have become sterile after the recent abortion. One tends to think of the child in all these cases, but still one owes something to the woman. At least, one should try to help her constructively and not just evade the question by saying, "I'm sorry, I can't help you. Go elsewhere. You have to do the best you can. Abortion is illegal." All of these replies are not helpful. I should like more constructive advice and help with the problem of handling the case of the single girl who is in the early months of her pregnancy. The prevention of illegal abortion with its concomitant maternal morbidity and mortality can be helped best by broadening and liberalizing the interpretations of medical indications to include the social and mental hygiene problems of each particular case. Sex education, a biologic understanding of conception and premarital marriage information are preventives for unplanned pregnancies, which eliminate the question of abortion, both therapeutic and illegal.

DEPRESSIVE STATE

Dr. E. W. Busse, Denver: Dr. Warner's questions concern problems which physicians frequently encounter and on which they are asked to make decisions. The first case which Dr. Warner cited was of a young girl who had a depression, was given electric shock therapy, is now illegitimately pregnant and wants an abortion. This is a case which rests on the careful evaluation of the patient by the psychiatrist for the simple reason that he first must decide how severe this depression is or was. For instance, at the institution with which I am associated we do not ordinarily believe in giving electric shock therapy to patients with psychoneurotic depressions. Some psychiatrists do. If it were merely a neurotic depression, I would not recommend a therapeutic abortion. However, if the depression was a recurrence and was rather severe, and if the pregnancy allowed to go to term would prevent her eventual recovery, I would recommend a therapeutic abortion.

THE ECONOMIC FACTOR

The second problem presented involves a woman who comes in wanting an abortion, stating that she is not economically ready to have a child. This is not a question for the physician to decide, whether a person is economically able or not. An abortion is certainly not justified. Some persons want a lot more financial security than do others before starting a family. A psychiatric problem is frequently present when a person asks for an abortion and gives as an excuse poor economic conditions. I believe it is best to talk not only to the potential mother but also to the husband and to find out where he fits into the picture. It is often the husband who is at fault, insisting on an abortion. He may be a poorly adjusted person, and if he can be helped a difficult marital situation may be improved.

INCEST

Question: What would be your attitude and the attitude of your committee in a case of incest?

Question: One of my patients had a daughter who was impregnated by the father.

Dr. Busse: I would probably recommend a therapeutic abortion. It has been my experience that a girl who is in such a situation, where the father will force her into sexual activities, is in an extremely poor home environment. That child is often a candidate either for a psychosis or for a life of antisocial behavior. Final opinion, of course, would rest on the child's mental condition, but often a therapeutic abortion is justified. The patient should have the benefit of psychiatric care, to do something about her future and to prevent a major mental illness.

RAPE

Question: Would that situation apply also to rape?

Dr. Busse: I believe that the justification of therapeutic abortion depends on the patient's mental condition and her attitude regarding her unwanted pregnancy.

MENOPAUSE

Question: What about the woman in menopause? Don't you think that the woman is afraid not because she is pregnant but because of the fact that the neighbors will talk about her since she is 43 or 45 years old and is pregnant? Don't you think that by means of radio, education, newspapers, etc., a woman could be helped to hold the baby?

Dr. Busse: The point has been raised that if a woman is going through the menopause, or is near it, and becomes pregnant she frequently worries about how the neighbors will feel and wonders what to do about it. Certainly proper education by any means is desirable. I certainly would not, off hand, recommend a therapeutic abortion unless the patient is faced with a psychotic break from which she might never recover. Otherwise, I do not believe that I would be justified in doing anything, especially if she has been a perfectly well integrated person up to that time.

GERMAN MEASLES

The Moderator: A number of inquirers are specifically interested in the recently much discussed necessity for therapeutic abortion in mothers who have had German measles in the early part of their pregnancy.

Member: I think there is a bit of confusion. It is chickenpox, not German measles.

The Moderator: German measles; several have inquired about that. I myself cannot answer that question. I feel that we have too quickly gone overboard on the inadequate evidence that has been accumulated thus far as to what proportion of women suffering from German measles early in pregnancy are going to have defective offspring. Until that question is answered by a greater accumulation of experience, I am afraid that none of us can answer the question as to the necessity of abortion for every woman who has German measles during the early part of her pregnancy. That is an inadequate answer, but it is the only answer that I feel competent to make at this time.

VACCINATION

Question: Recently in New York city, in connection with the epidemic of smallpox, the Health Department was asking whether women in early pregnancy should be vaccinated. The Health Department decided not to vaccinate during early pregnancy for fear that these women might possibly have defective children.

The Moderator: There has recently been in the New York metropolitan area not an epidemic but several sporadic cases of smallpox which have been fatal. The Health Department of the city and state thereupon properly seized upon that circumstance in an effort almost to coerce the population into widespread vaccination. Every pregnant woman within 50 miles of New York City Hall wanted to know about the advisability of vaccination. Inasmuch as German measles is a virus disease, many physicians thought that if a woman is inoculated with another active virus the effect on her offspring might be similar to that which is supposed to result from German measles. Many physicians, including myself, advised their pregnant patients to have it done. The Health Department did not have the courage to make it obligatory on such women. I think that within the next two or three years the results will be available of what constitutes a great mass experimentation in regard to this matter which no one has heretofore had opportunity to observe. We should all anticipate the conclusions to be drawn from the observations of that great mass experiment.

BUERGER'S DISEASE

Question: Should abortion be induced in a woman with Buerger's disease?

Dr. H. M. Korns, Dubuque, Iowa: Buerger's disease is extremely rare in women, but, if this question should arise, it could not be answered without careful study of the entire cardiovascular system, for Buerger's disease often involves visceral, as well as peripheral, arteries and veins.

THERAPEUTIC ABORTION CAUSE OF STERILITY

Moderator: What about the woman who has procured a therapeutic abortion, the indication for which is not specified, who thereafter is unable to conceive and becomes desirous of having a child? I think that Dr. Busse touched on that in his original discussion. Do you want to elaborate on it, Dr. Busse?

Dr. Busse: I will go over that question as I understand it. I may be wrong. The woman had a therapeutic abortion and thereafter wanted a child but was unable to conceive. What is going to happen? Such a woman may develop guilt feelings and become depressed and suicidal. These patients are difficult to handle. Frequently the psychiatrist has no way of treating them other than use of electric shock therapy. After the depression has begun to improve, then it often becomes a matter of prolonged psychotherapy. In the cases of less severe depression it is sometimes possible that the patient will eventually become capable of accepting an adopted child as a substitute. However, that is an individual problem, and I am afraid that I cannot generalize because each patient must be separately evaluated.

The Moderator: I think that all the essayists have sufficiently developed the important point that every case in which therapeutic abortion is proposed must be carefully individualized. Some of the questions cannot be answered categorically, inasmuch as individual considerations would vary greatly.

HYPERTHYROIDISM

Question: A patient a year ago had a thyroidectomy for hyperthyroidism. She quieted down and had a perfectly normal basal metabolic rate after the thyroidectomy. Within a year she became pregnant. After she became pregnant there was a recrudescence of her hyperthyroidism with a high basal metabolic rate comparable to that which she had prior to the operation.

Dr. S. C. Harvey, New Haven, Conn.: It is not unusual to have hyperthyroidism in conjunction with pregnancy. My reaction to it would be exactly as I have said previously, that that patient should be treated as if she were not pregnant, by medical means. If you induce an abortion, you are likely to precipitate the thyroid storm and have much more difficulty with the thyroid situation as a result of the abortion.

TUBERCULOSIS OF BLADDER

Question: A patient whose ureters have been transplanted because of tuberculosis of the bladder is now four months pregnant, and has an attack of pyelitis. Should abortion be induced? She has no children and would like to have one.

Dr. Harvey: That is distinctly a situation that has to be decided with all the factors in hand. Certainly a person who has so severe tuberculosis of the bladder as to require transplantation in all probability has tuberculosis of the kidneys, also. The pregnancy would be a rather dangerous business. On the other hand, if she wishes to take the risk and insists on it, that, after all, is her own decision.

The Moderator: Emphasizing what Dr. Harvey has said, although in this situation even the urologist would not apply urethral drainage in the same way as he would in a normal woman, there is still enough resource in the use of antibiotics and other modern drugs to keep her pyelitis under control, so that it would seem to me worth while at least to attempt to save for her this baby.

TOXEMIA

Question: A patient is 41 years old. She had had her first pregnancy at 33. She had toxemia at the seventh month in that pregnancy, characterized by porphyrinuria, hypertension and edema. She was allowed to go to term and delivered a healthy baby. In her second pregnancy at age 38 she had toxemia with similar symptoms but beginning earlier, this time in the fifth month. She was carried through that pregnancy also by four months of continuous bed rest, survived the pregnancy and was in good health. Her baby lived. Now, at 41, when she is only two months pregnant, she again shows toxemia characterized by headache and a blood pressure of 160 systolic and 110 diastolic. What should be done in this case?

Dr. Korns: I think that the obstetrician could help answer that question. I would have to examine the patient and form an estimate of her myocardial reserve. I have seen such patients, however, who I thought could continue with the pregnancy safely if they were closely watched.

The Moderator: I am glad to see that Dr. Korns, assuming that this woman did not have any pronounced cardiac impairment or impairment of renal function, would be moderately encouraged to attempt to carry this woman through her pregnancy, even though the toxemia has appeared so early. That refers to some of the things which he said in his paper about hypertension per se. I certainly concur with him and would be glad to attempt to carry this patient through to a third successful termination.

RH INCOMPATIBILITY

QUESTION: A patient has lost 2 infants—presumably because of Rh incompatibility between husband and wife. What is the prognosis in this situation?

DR. HUDNALL H. WARE JR., Richmond, Va.: We had had the experience of seeing a patient who lost her first baby, apparently from an Rh incompatibility. The second baby was born alive and lived. The third baby again was lost through an Rh incompatibility. The patient's husband was Rh positive and heterozygous as determined at the third pregnancy, and the wife was Rh negative. In the fourth pregnancy a rather severe toxemia developed at the seventh month with edema and elevation of the blood pressure, but no urinary changes. She was put to bed and her condition improved. She was carried to term and delivered of a living baby this time. In commenting on the case which Dr. Cosgrove has referred to me, I recognize that Dr. Levine and Dr. Diamond, both authorities on this subject, do recommend for abortions certain selected patients who have had proved Rh incompatibilities. Studies to determine whether the husband is heterozygous or homozygous would be helpful. I would try to carry this patient to term if her condition remained good, hoping that she might be one of the lucky ones. I would have her blood examined regularly and watch for an increase in the antibody titer. I would consult one of the experts on Rh studies for advice in treating the patient.

MULTIPLE SCLEROSIS

QUESTION: Should abortion be induced in the patient with multiple sclerosis? She is now in the midst of a four year remission, is 32 years old and is apparently in good health.

DR. BUSSE: In my brief experience, patients with multiple sclerosis are apt to have an exacerbation during pregnancy. I would base my decision on the severity of the condition and the period of time which has elapsed since the last exacerbation. If the patient's symptoms are mild and she is anxious to have the child, I can see no reason for terminating the pregnancy. If she is rather ill and it is probable that the pregnancy will make her condition worse, I would recommend a therapeutic abortion.

THE MODERATOR: A colleague in a nearby city has just successfully brought such a patient through her pregnancy who had no relapse during pregnancy and no sign of deterioration, after the faculty in the local medical college had refused to take the responsibility of carrying her through. Again there is the need for individualization and care in acting too much on strictly didactic principles.

TUBERCULOSIS IN HUSBAND

QUESTION: A man, bedridden with tuberculosis, gets his wife pregnant. She is the only one to take care of him. Should an abortion be induced?

THE MODERATOR: No; as an obstetrician I refuse to be the habitual mechanician of fools who are too selfish and ignorant to take care of themselves.

SPOTTING

QUESTION: How does the panel feel concerning the interruption of pregnancy because of frequent spotting during the first trimester? Many subscribe to the theory that the bleeding may be a natural effort to rid the patient of pregnancy with defective germ plasm and subsequent defects are proved by the condition of the baby.

QUESTION: Let's go a little further and say these patients have had two successive pregnancies, with malformation of the fetuses, hairlip or hydroencephalus. We have had four requests in the past year for therapeutic abortion for such patients. Let's go further and ask whether a patient has had two successive malformations—not one, because it is known sometimes that the next will be a perfectly normal baby, but two—should we consider a therapeutic abortion at their request because they do not want to go through with the third pregnancy?

THE MODERATOR: I do not think so. I have seen such patients repeatedly have perfectly normal babies. One never knows what kind of baby he is destroying when he does an abortion. It may be the best baby that patient has ever had. He has no means of knowing.

My answer to that would be categorically no.

CESAREAN SECTIONS

QUESTION: How many cesarean sections should be allowed before a therapeutic abortion should be done?

THE MODERATOR: Well, what a foolish thing it is to do a therapeutic abortion just because a woman has had two or six or ten previous cesarean sections. Let her go ahead and have this further one by section. Sterilize her then, if you like.

SUMMARY BY THE MODERATOR

There is a phase of this situation that none of the discussers touched on, which is important. Both Dr. Korns and Dr. Harvey have indicated that in spite of the number of situations in which they recognize the necessity for therapeutic abortion, women with all kinds of impairments, in their experience, can be carried safely through pregnancy, no matter what the precise nature or degree of severity of the symptoms which may present themselves, if one can give them extremely careful medical and surgical attention. Medical and surgical treatment costs money. The vast majority of these patients who could afford the costs of an ordinary parturition cannot afford the cost of four to six months' hospitalization. They do not all live in great metropolitan centers where the public hospitals can subsidize that cost through facilities already provided out of tax funds. Eleemosynary sources are not available or are inadequate to do it. And yet, if medicine is going to do its job, if it is going to conserve human life unborn with just as much assiduity and conscience as it devotes to conserving adult human life, a means must be found to subsidize the patient with rheumatic heart that has to be kept in bed, for instance, all during pregnancy. We have a broad problem attending this matter of the conservation of fetal life; that is, the provision of subsidy from public funds at some level—municipal, state or federal—for persons suffering from numerous complications of pregnancy, in the same sense that the campaigns against tuberculosis, syphilis, poliomyelitis and cancer are being subsidized by governmental funds in addition to great voluntary popular subscription. Rheumatism and rheumatic heart disease particularly are next on the list of the great scourges of mankind that will have to be so subsidized. Call that state medicine, if you will; I do not care; I have long since learned not to shy too much at the bugaboo of state medicine, because we have state medicine with us in a large degree and have had for half a century. But if we are going to answer this whole question satisfactorily, the sufferers from many of these diseases must be helped, and the only source of help that I can envisage as available to them on a large scale is public money. It is the duty of this Association to give serious thought to the means of seeing that that great want is supplied. I should like to summarize in a personal fashion, without any reflection on the opinions of these fine men who have provided us with so much worth while thoughtful material this morning. The medical profession from the nature of its work and obligation is and must continue to be a highly ethical group. A high sense of this ethical obligation must be thoroughly instilled in members of the medical profession during their undergraduate experience. The responsibility for this ethical training resides in medical teaching faculties. This responsibility entails organized, positive efforts toward its fulfilment. Nowhere does this ethical sense have more direct bearing than in relation to abortion. Widespread and indiscriminate abortion is a major factor in puerperal mortality. It is believed to be best controlled by retention of the ethical recognition that the fetus is a human being with all the potentialities of every human being; that its destruction is murder, only justifiable in the most extreme circumstances involving direct and imminent threat to the mother's life; that corollary improvement in the whole situation must depend on the wide development of one of the four freedoms given as the goal of our national development, that of freedom from want, and that in the preservation of the ethical sanctity of fetal life and the development of this freedom in all its phases lies more hope of eventual betterment of the general abortion abuse situation than a reversion to the amoral and unethical plane of the most primitive and debased societies. It is the duty of medical bodies to formulate and supply a specific code for the ethical guidance of the members of our profession in relation to this problem.

HEALTH SERVICES FOR THE RURAL CHILD

Availability of Hospitals, Physicians and Dentists in Service Areas

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The "National Health Program" of the American Medical Association states that "every child should have proper attention, including scientific nutrition, immunization and other services . . ." Those members of the American Medical Association who have special interest in the field of child health and who belong to the American Academy of Pediatrics have, through an official statement of the Academy, endorsed a similar objective of better medical care and health supervision for all children. Not only private medicine but government and farm groups as well are committed at national, state and community levels to an objective of more and better health services for the rural child.

Convinced that physicians, who are caring for children in their daily practice, must assume a greater share of the responsibility for planning for the improvement of child health, the Academy has undertaken an active program to provide better and more evenly distributed health services for all children irrespective of race, economic status or geographic location. As a first step, the Academy set out to learn the facts concerning existing health services for children so that, with a full knowledge of present conditions, well considered opinions and recommendations might be reached.

A nationwide study of child health services was therefore instituted with the cooperation of the United States Public Health Service and the United States Children's Bureau. During the course of this study, which is now nearing completion, an intensive survey has been made of hospitals, private practice of physicians and dentists, community health agencies and the pediatric training given by medical schools. Much of the information has been collected by personal visits to hospitals, health centers and medical schools. Mail questionnaires to physicians and dentists have brought an exceptionally high percentage of response. The study has been both broad in scope and detailed in its investigation. At the national, state and local levels, facts have been gathered with a definite purpose in mind: to provide the tools with which to improve child health, not only for the country as a whole but for every local community. Therefore, certain of our data are being tabulated for each of the 3,076 counties.

SERVICE AREAS BASED ON COUNTY GROUPS

Inequalities are known to exist in health services for the rural child in comparison with those for the urban child. We undertook to determine the extent and nature of these inequalities in specific detail. But at the outset we accepted the fact that the usual differentiation between rural and urban is unsatisfactory for comparisons in medical services. Many persons living in rural areas are at the same time near enough to urban centers to permit easy access to the facilities of those centers. However, in rural areas far removed from urban centers, services received are, for the most part, restricted to those which can be obtained locally.

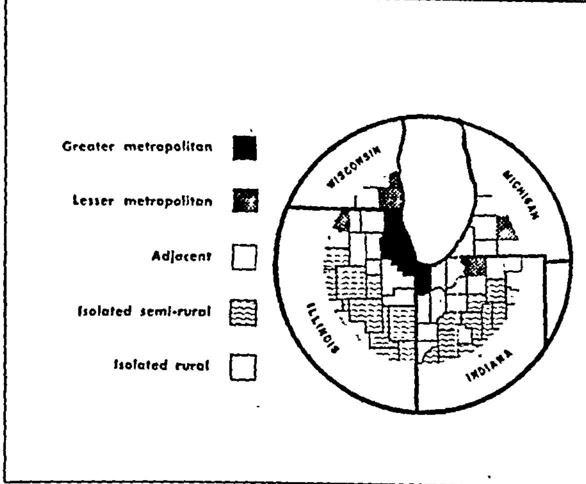

Fig. 1.—Example of county grouping.

Therefore, service areas have been established recognizing two fundamental characteristics: *(a)* population and *(b)* proximity to densely populated areas. In this way, consideration is given to areas which, although they themselves may be sparsely populated, are nonetheless relatively close to metropolitan areas and the medical facilities ordinarily available in such centers.

For practical purposes, service areas have been established so as not to cross county lines. Five groups of counties have been created. Metropolitan counties, which include the metropolitan districts of cities of 50,000 or more persons, have been subdivided into "greater metropolitan" and "lesser metropolitan," the former being in or around the twelve major cities of the United States. Counties geographically contiguous to any of the metropolitan counties are classified as "adjacent." The remaining counties have been subdivided into "isolated semirural" and "isolated rural," depending on the presence or absence of an incorporated place of 2,500 or more inhabitants.[1]

From the American Academy of Pediatrics Study of Child Health Services and the Division of Public Health Methods of the United States Public Health Service.

Read at the third annual meeting of the National Conference on Rural Health of the American Medical Association, Chicago, Feb. 6, 1948.

Because of lack of space this article has been abbreviated in The Journal by the omission of tables 4 and 5. The complete paper will be found in the authors' reprints, which the authors will be pleased to send on request to the American Academy of Pediatrics Study of Child Health Services, 2346 Massachusetts Ave., N.W., Washington 8, D. C.

[1] A county is classified as metropolitan if it has at least one city of 50,000 or more inhabitants. Counties are also classified as metropolitan if they include *(a)* densely populated areas touching metropolitan counties (adjacent and contiguous minor civil divisions which have a population of 150 or more per square mile), and *(b)* 50 per cent or more of the population of the county or at least 50,000 people within such densely populated areas. A greater metropolitan county is one in which there is located any part of metropolitan districts of 1,000,000 or more inhabitants in and around the cities of Baltimore, Boston, Chicago, Cleveland, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco and Washington. Lesser metropolitan counties are all other metropolitan counties. Counties that touch a metropolitan county but are not themselves metropolitan have been classified together as adjacent counties, unless the nearest point of the county is more than 50 road miles (80.5 kilometers) from a city of 50,000 or more population. (A few nearby counties were classified as adjacent, on the basis of travel habits of the people, although these counties did not actually touch a metropolitan county.) Counties that do not touch any part of a metropolitan county have been subdivided into isolated semirural and isolated rural counties. An isolated semirural county has at least one incorporated place of 2,500 or more inhabitants, and an isolated rural county has no incorporated community of 2,500 or more inhabitants.

Figure 1 illustrates the county groups in and around the city of Chicago. The classification of each county in the United States is given in table 6.

The unusual feature of this manner of classification is in the use of the adjacent category.[2] It is recognized that a large hospital in an urban center serves not only the county in which it is located but also the surrounding counties. It is for hospital services and the services of specialists that the use of the term "adjacent" is particularly suitable. By grouping metropolitan and adjacent counties together, we have established a reasonably reliable service area for hospitals and specialist service so that comparisons may be made with the combined isolated counties. On the other hand, it is fair to assume that physicians and dentists in general practice tend to limit their practice to the communities in which they live or the immediately surrounding territory. Therefore, data for these physicians and dentists are discussed separately for each of the five county groups.

According to this classification, two thirds of the 3,076 counties in the United States are isolated; that is, predominantly rural and also far removed from metropolitan centers. Relatively few counties, 240, are metropolitan (table 1). The metropolitan and adjacent counties combined represent the areas which we have assumed are served by or are readily accessible to large urban medical centers.

Table 1.—*Counties in the United States by County Group and Size of Largest Urban Place*, 1940

		Counties with an Incorporated Place of		
	Total counties	50,000 or More Persons	2,500 to 50,000	Less than 2,500
Greater metropolitan ...	63	34	29	0
Lesser metropolitan	177	130	47	0
Adjacent	668	——	472	196
Isolated semirural	1,116	——	1,116	——
Isolated rural	1,052	——	——	1,052
Total	3,076	161	1,664	1,248*

Many of the adjacent counties (almost one third) are in themselves entirely rural by definition of the United States Census; that is, they have no incorporated place of 2,500 persons or more. However, since their inhabitants have the advantages of living near medical centers, they are much more favorably located than persons who live in the counties which are isolated as well as rural.

Table 2.—*Rural Population and Density of Population in the United States, by County Group*, 1940[*]

	Percentage of Total Population That Is Rural	Persons per Square Mile
Greater metropolitan	11	1,136
Lesser metropolitan	24	193
Adjacent	68	42
Isolated semirural	64	26
Isolated rural	100	10
Total	41	41

[*] From: Sixteenth Census of the United States: United States Department of Commerce, Bureau of the Census, 1. Population, United States summary, table 17, 1940.

Table 2 shows for each county group the proportion of the total population that is rural. In our classification, the only county group which is 100 per cent rural by definition is our isolated rural. About two thirds of the population of the isolated semirural and of the adjacent counties are rural, while even the population of the group of greater metropolitan counties is 11 per cent rural. Expressed in terms of density of population, the contrast is even more striking among the five county groups.

Analysis for individual states shows that there is a high degree of correlation between our county classification and counties grouped according to the size of their largest urban place.[3]

In any study of the availability of medical care, consideration must be given to the economic status of the community and to the individual's ability to pay. We have found a close correlation between our classification of counties and average per capita income. Figure 2 shows the average per capita income for the five county groups based on effective buying income.[4]

The average per capita income in isolated rural counties is about one third of that in metropolitan counties. The income level rises sharply between isolated rural and isolated semirural counties, and between adjacent and metropolitan counties. Adjacent and isolated semirural county groups have about the same average income per capita.

In general, the same pattern of association between per capita income and the county group classification holds within individual states.

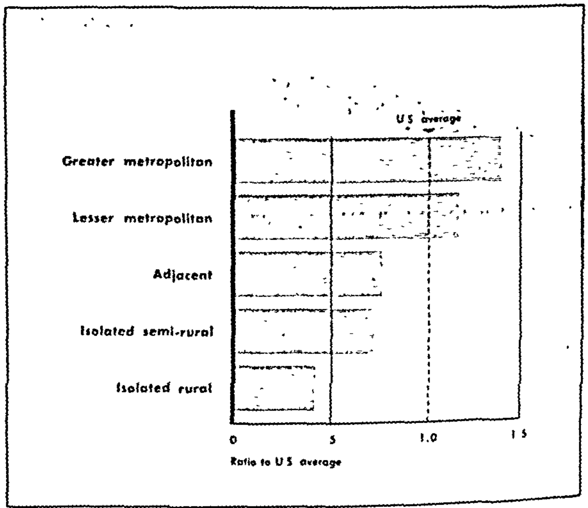

Fig. 2.—Average per capita income in the United States, by county group, 1940.

CHILD POPULATION, 1945

Since this study has been developed in order to determine health services currently available for children, it became necessary to have recent population data, at least for children. With the large shift in population during the war years, it was considered essential to determine the number of children county by county for 1945—figures which were not available elsewhere for this inter-census year.

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[2] The basis of this classification was furnished by Elliott H. Pennell and the staff of the United States Public Health Service.

[3] For example, when the 100 counties in North Carolina are divided into 16 cells (4 by size of largest urban place times 4 by our county classification), the value of the coefficient of mean square contingency, c, is 0.76. The maximum value of c for a 4 by 4 table is 0.87.

[4] This is based on estimates of effective buying income in 1940, made by Sales Management and published in Sales Management 48: no. 8 (April 10) 1941. The estimates were made on the basis of money actually paid for goods and services, federal allotments, money paid out of savings and surpluses by business and financial institutions, plus the nonmoney income of farm and village residents. The income is gross income before taxes are paid. The estimate is based upon a formula devised by Sales Management. Per capita figures were computed on the basis of population as reported in the United States Census of 1940.

[5] North Carolina may again be used as an example. When the 100 counties are divided into 4 income classes and 4 county groups, the value of c, coefficient of mean square contingency, is 0.71 in this 4 by 4 table.

A method was devised for estimating population under 15 years of age as of July 1, 1945 for each county in the United States.[6]

According to these estimates, there were 36,000,000 children under 15 years of age in the United States as of July 1, 1945. Table 3 shows that 13,000,000 children—37 per cent of the total—are in isolated counties.

TABLE 3.—*Children in the United States, by County Group,* 1945

	Children under 15		
	Number	Percentage	
Greater metropolitan	8,371,690	23)	
Lesser metropolitan	8,635,100	24)	63
Adjacent	5,847,352	16)	
Isolated semirural	9,659,071	27)	
Isolated rural	3,199,573	10)	37
Total	36,005,795	100	100

It is this group of 13,000,000 children living in isolated counties with which we are particularly concerned in this discussion, for these are the children who are far removed from the health services and facilities of large urban centers. Children in these isolated counties do not have the same opportunities for medical care as do those children who happen to be living in more favored localities. Deficiencies appear in all aspects of health services and facilities: hospitals, physicians and dentists and community health services.

HOSPITALS, PHYSICIANS AND DENTISTS

Hospitals.—In surveying hospital facilities it has been impossible to obtain any count of the total number of beds used by children. Except in pediatric hospitals and those with separate pediatric units set aside exclusively for children, many beds are used interchangeably for children and adults according to need and circumstance. Therefore, for present purposes, we have based our calculations on the total number of beds[7] in all general hospitals which admit children, defining children as of the ages between birth and 15 years.

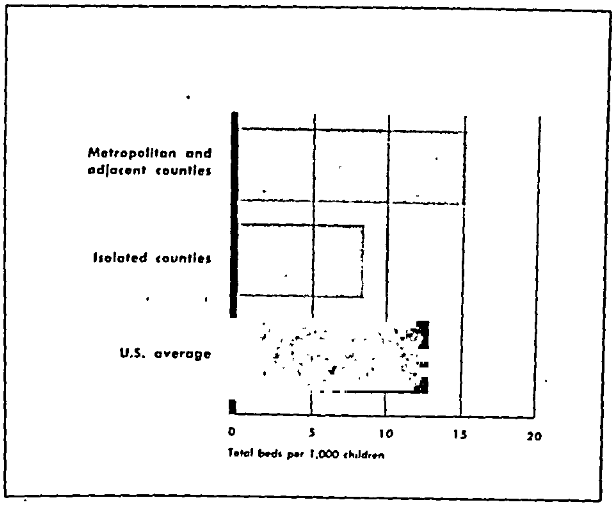

Fig. 3. Beds in general hospitals in the United States, by county group, 1946.

In 1946, there were approximately 463,000 such beds in the United States, a ratio of 3.3 to 1,000 persons.[8] When related to child population, the ratio becomes 12.8 beds to every 1,000 children.

As shown in figure 3, the ratio in the service areas made up of metropolitan and adjacent counties is 15.4; in isolated counties, 8.4. Thus children in isolated areas have only about half the relative number of hospital beds available locally for their care as have the children in or near large urban centers.

Physicians.—Of all physicians in the United States in 1946, 116,000 were recorded as in private practice.[9] This number excludes retired physicians and those in full-time academic, administrative, research or institutional positions, and those employed by federal, state and local health agencies. For the country as a whole, the number of physicians in private practice in relation to population is 0.8 per 1,000 persons (1 practicing physician per 1,200 persons).[8] Relating the total number of practicing physicians to child population, the rate becomes 3.2 per 1,000 children.

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[6] Population under 5 years of age, as of July 1, 1945, was estimated for each county on the basis of the number of births for each of the five calendar years 1940 through 1944. Survival rates for each year of age were applied to the number of births occurring in each of the years. The rates used were those for each of the three major geographic regions of the United States and for white and nonwhite population separately in the South. The figures obtained by the application of survival rates to the births occurring in each of the five years 1940 through 1944 were added for each county, and these totals were corrected for under registration of births. The county estimates of total living population under 5 years of age were then adjusted to tally with the estimated population of the entire United States under 5 years of age as of July 1, 1945. The number of children aged 5 to 14 years, as of July 1, 1945, was estimated for each county on the basis of changes in school enrollment since 1940. The ratio of elementary public day school enrollment as of June 1945 to that of June 1940 was used to project to 1945 the 1940 census population in this age group for each county. The county estimates of population were then adjusted to tally with the estimated population of the United States for the ages 5 to 15 years as of July 1, 1945. Child population under 15 years of age was obtained by combining these two estimates. Sources were as follows:

(a) Vital Statistics of the United States: II. Natality and Mortality Data for the United States Tabulated by Place of Residence, 1940-1944, United States Department of Commerce, Bureau of the Census, 1945.
(b) United States Abridged Life Tables, 1939: Urban and Rural, by Regions, Color and Sex, United States Department of Commerce, Bureau of the Census, unnumbered, (June 23) 1943.
(c) Studies in Completeness of Birth Registration: I. Completeness of birth registration, United States, Dec. 1, 1939 to March 31, 1940, United States Department of Commerce, Bureau of the Census, Vital Statistics, special reports 17: no. 18 (April 20) 1943.
(d) Estimated Population of the United States, by Age, Color, and Sex, 1945 and 1944, United States Department of Commerce, Bureau of the Census, Jan. 27, 1946, series p-46, no. 2.
(e) Data from State Departments of Education for School Years 1939-1940 and 1944-1945.
(f) Sixteenth Census of the United States, 1940. II. Population: Characteristics of the Population, United States Department of Commerce, Bureau of the Census, 1943.

[7] Beds in general, maternity and pediatric hospitals, both those registered by the American Medical Association and those unregistered, provided that they: *(a)* report five or more beds and *(b)* admit at least 10 children or 10 obstetric cases annually. Beds in general hospitals operated by the Bureau of Indian Affairs are included on the assumption that they represent facilities operated on a local area basis, but other federal hospitals are excluded. Also in the excluded group are maternity nursing homes, hospitals in jails, prisons and reformatories, school hospitals and infirmaries and health camps.

[8] Based on total population as of July 1, 1946. Child population by counties as of July 1, 1945, is used as the basis for rates by county group.

[9] A list of physicians in private practice was prepared in each state on the basis of all available sources of information, including the American Medical Directory: II. Physicians, Chicago, American Medical Association, 1942; membership lists of the state and county medical societies; records of the Procurement and Assignment Service, of the State License Bureau, of the State Health Department and of the Internal Revenue District offices. Schedules, sent to each physician listed, asked, "Are you engaged in private practice? If NO, state reason." For those physicians failing to return schedules, information as to whether or not each was engaged in private practice was obtained through local health officers, state and county medical societies or by telephone or postcard. This inquiry also served to determine whether or not these physicians considered themselves as specialists. Thus a final corrected list of all physicians in private practice was obtained. It should be noted that there was no exclusion of physicians who do not treat children. The lists were prepared between April and December 1946, except in the following states: North Carolina (November 1945), Mississippi (January 1947), Oklahoma (March 1947) and Wyoming (July 1947).

When we analyze the physician-child ratio according to county groups, pronounced inequalities are revealed. In figure 4 it is seen that the physician-child rate in isolated counties is one half of that in metropolitan and adjacent counties (1.8 as compared with 4.0 per thousand children).

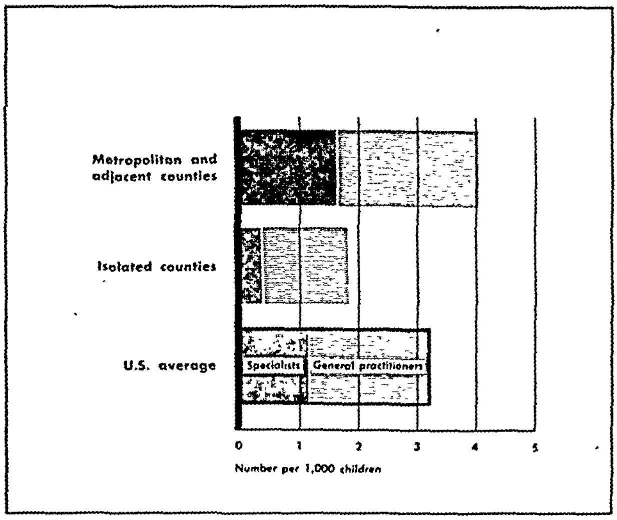

Fig. 4.—Physicians in private practice in the United States, by county group, 1946.

In analyzing the distribution of physicians, we should consider specialists and general practitioners separately. All physicians who reported that they limited their practice to a recognized specialty are defined as specialists. They tend naturally to concentrate in or near medical centers. The service areas around urban centers include 89 per cent of all specialists. The 13,000,000 children in isolated counties have relatively little specialist care available locally—0.3 specialists per thousand children as compared with over five times that rate (1.6) in the metropolitan and adjacent counties.

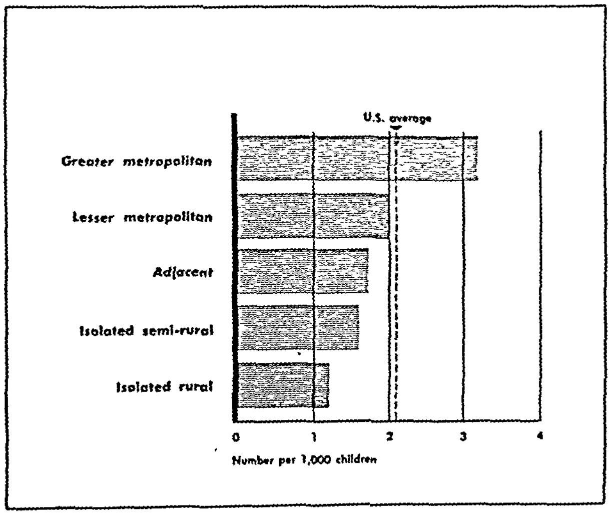

Fig. 5.—General practitioners in private practice in the United States, by county group, 1946.

All children should have equal opportunities to benefit from the highly skilled knowledge and technic of specialists. However, in a large proportion of cases, specialist care does not constitute an emergency. The child may be taken to the specialist or the specialist brought to the child, even though he lives far away in an isolated rural county.

In the case of the general practitioner, however, the situation is different. Just as many *general* practitioners are needed to care for 1,000 children in isolated rural areas as in the metropolitan areas. In fact it may be argued that more general practitioners are required in proportion to population in isolated areas, since the specialists are fewer and also distances are greater. The ratio of general practitioners is shown therefore for each of the five county groups in figure 5. There are 3.2 general practitioners for every 1,000 children in the greater metropolitan counties, but only 1.2 in isolated rural counties.

Dentists.—The scope of our study has included dental care for children. Dental caries shares with the common cold the unenviable honor of the commonest disease of children as well as adults. Any survey of child health services must therefore give serious attention to the distribution of dentists and the care they render to children.

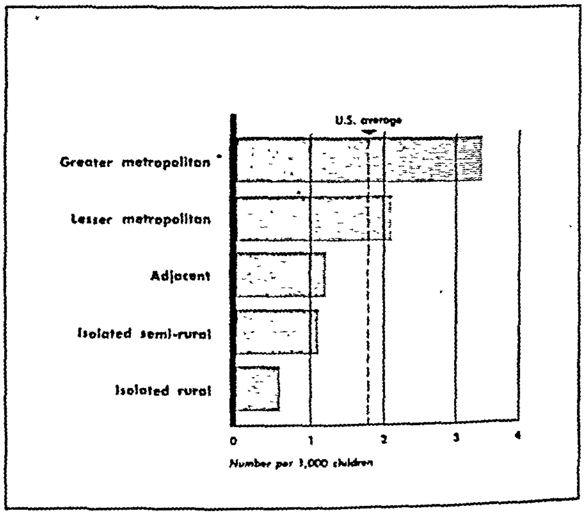

Fig. 6.—Dentists in private practice in the United States, by county group, 1946.

In 1946 about 66,000 dentists were reported in private practice in the United States.[10] Since our data do not show how many of these dentists accept children as patients, we have used the total number in relation to child population and, for the purposes of this discussion, have not separated specialists from those in the general practice of dentistry. As in the case of physicians in general practice, inadequacy of care and neglect of health results if dentists are not readily available. The rural child who must travel far to see a dentist gets inadequate dental care or none at all.

Figure 6 shows that there are 1.8 dentists per thousand children in the United States. In the isolated rural counties the rate is 0.6, or less than one fifth that in the greater metropolitan counties (3.4). Thus the distribution of dentists follows the same pattern as that of physicians, with a concentration in or near large urban centers. As in the case of the medical general practitioners, the rates in adjacent and in isolated-semirural counties are nearly identical and much lower than in lesser metropolitan counties.

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[10] A list of dentists in private practice was prepared in each state using similar methods to those described for physicians in footnote 9. The lists were prepared between April and December 1946, except in the following states: North Carolina (January 1946), Indiana (January 1947), Mississippi (January 1947), Oklahoma (March 1947) and Wyoming (July 1947).

DEFICIENCY IN HOSPITAL BEDS, PHYSICIANS AND DENTISTS IN ISOLATED COUNTIES

A graphic summary of the deficiency in hospital beds, physicians and dentists in relation to the population in the isolated counties is shown in figure 7. About one third of the total population

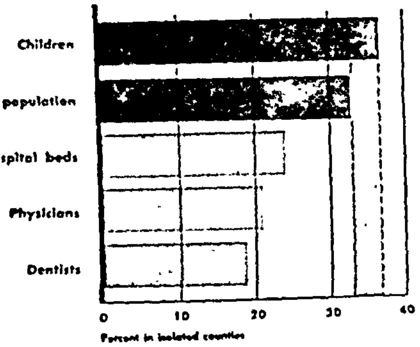

Fig. 7.—Summary for isolated counties in the United States.

live in these isolated counties.[11] Locally available to this third of the population are 24 per cent of the hospital beds, 21 per cent of the physicians and 19 per cent of the dentists. As shown in figure 7, the gap between the lengths of the columns for hospital beds, physicians and dentists and that for total population is an indication of the deficiency in these three categories of health services.

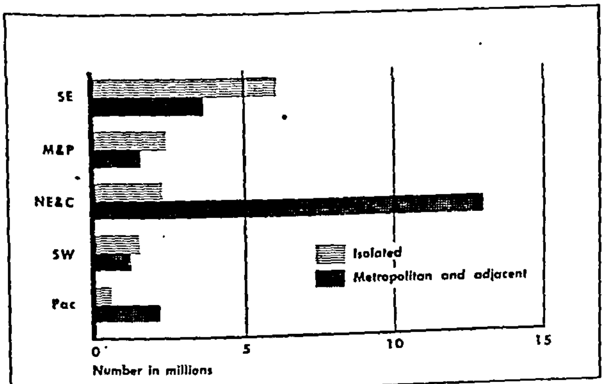

Fig. 8.—Summary for regions in the United States, by county group, 1946: children.

In respect to children, the deficiency is even greater. Rural families are on the average larger than those in cities, so that in these isolated counties the proportion of children is relatively greater. The 13,000,000 children in the isolated counties, who constitute 37 per cent of the children of the United States, get distinctly less than their share of the service of hospitals, physicians and dentists located in their own areas.

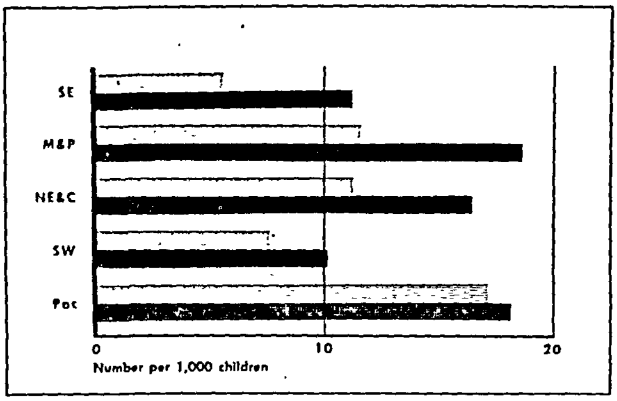

Fig. 9.—Summary for regions in the United States, by county group, 1946: beds in general hospitals.

It is recognized that sparsely settled communities actually require within their boundaries fewer hospital beds for every thousand persons than are needed in cities. In cities, with their medical centers, specialists and highly skilled professional services, hospitals not only serve the patients among their own urban populations, but also admit for diagnosis and treatment many of the patients with more difficult cases referred from nonurban areas. This difference in the number of beds required in urban areas as compared with rural areas has been taken into account in the standards recommended by the United States Public Health Service. On the basis of their proposed allotments among hospital districts, it is estimated that the number of general beds in isolated counties would have to be increased by at least 50 per cent.[12]

In respect to physicians and dentists, serious deficiencies exist in isolated areas. It has already been stated that isolated counties need as many, if not more, general practitioners for every 1,000 persons as are needed in the greater metropolitan counties if children in these counties are to have equal opportunity for medical care and health supervision. In order to assure that children in isolated counties have available to them in their own areas general practitioners at a rate available to

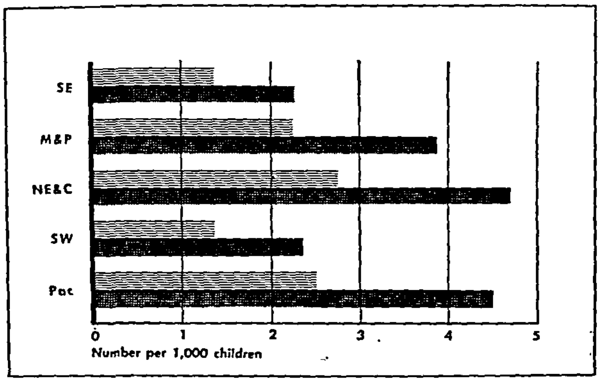

Fig. 10.—Summary for regions in the United States, by county group, 1946: physicians.

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[11] Although, as indicated previously, estimates of child population for each county as of July 1, 1945 were made in connection with this study, no corresponding estimates were practicable for the population of all ages. Tabulation of data from the 1940 Census, however, show that 33 per cent of the total population and 38 per cent of the children live in isolated counties:

	Children Under 15	Total Population
Greater metropolitan	7,565,504	36,402,167
Lesser metropolitan	7,281,471	31,813,041
Adjacent	5,442,993	20,284,884
Isolated semirural	9,125,551	31,999,012
Isolated rural	3,556,562	11,170,141
Total	32,972,081	131,669,275

[12] Based on a special tabulation of the data, in Mountin, J. W.; Pennell, E. H., and Hoge, V. M.: Health Services Areas—Requirements for General Hospitals and Health Centers, Public Health Bulletin no. 292, Federal Security Agency, United States Public Health Service 1945.

the children in the greater metropolitan counties of the United States, the present count of 19,600 general practitioners in these counties would have to be doubled. On the same basis, the present number of 12,700 dentists in isolated counties would have to be tripled.

Regional Differences.—So far comparisons have been made between county groups for the country as a whole. If now the country is divided on a regional basis, glaring deficiencies in health services are revealed in some sections of the country in comparison with others.

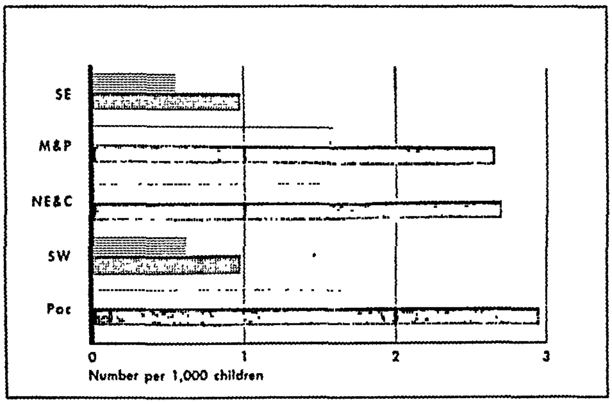

Fig. 11.—Summary for regions in the United States, by county group, 1946: dentists.

For the purpose of this study the states have been grouped into five regions. Without attempting to give a full description of regional differences at this time, we may call attention to certain deficiencies in the Southeast region. This is an area which is predominantly rural, with a large proportion of the country's rural children. In our group of isolated counties in the Southeast region, there are 6,000,000 children—almost half of the total 13,000,000 children of the United States living in isolated counties (fig. 8).

These isolated counties in the Southeast region show the lowest rates of general hospital beds, physicians and dentists of any of the five regions presented in figures 9, 10 and 11. Hospital facilities are available at a rate only half of that for metropolitan and adjacent counties in the same region. Children in isolated counties in the Pacific region, the region with the highest rate, have three times as many hospital beds per child. Discrepancies of about the same magnitude are apparent for physicians and for dentists.

When a comparison of facilities and personnel is made state by state, the lowest rates are usually found in the twelve states of the Southeast region (table 6).

Community Health Services.—It is sometimes assumed that, although children in rural areas have less than their share of the services of physicians in private practice, this is at least in part compensated by an increase in community health services such as well-baby clinics, public health nurses and dental clinics. Such, however, is not the case. In fact the reverse is true. We have already reported[13] that the amount, distribution and character of community health activities are also weighted heavily in favor of children in urban areas.

CONCLUSION

These facts, only a few of the many which are being sharply defined by the Academy's study, reveal in specific detail inequalities in the amount of medical care received by children in rural areas. Children living in these areas are handicapped particularly in specialist care, clinic care and the highly skilled diagnostic and treatment services received in hospitals—those very services which have been agreed on as the right of every child.

Now that the facts have been obtained, the American Academy of Pediatrics, with the continuing cooperation of the United States Public Health Service and the United States Children's Bureau, has undertaken an action program for the improvement of child health not only for the country as a whole but for every state, county and local community. The field is limitless in its scope, but already certain specific projects have been planned. Most prominent among the projects for first consideration are: (1) to strengthen pediatric teaching in order

Table 6.—*Child Population, Beds in General Hospitals and Private Practitioners, by State and County**

State and County	County Group (1)	Population, 1945: Children Under 15 (2)	Beds in General Hospitals, 1946: Number (3)	Private Practitioners, 1946: Number of physicians: Total (4)	Number of physicians: General Practitioners (5)	Number of Dentists (6)	Number per 1,000 children: Physicians (7)	Number per 1,000 children: General Practitioners (8)	Number per 1,000 children: Dentists (9)
ALABAMA	X	992,741	5,653	1,362	931	515	1.37	0.94	0.55
Autauga	3	7,075	18	5	5	1	0.71	0.71	0.14
Baldwin	3	12,827	50	17	13	6	1.33	1.01	0.47
Barbour	3	11,220	38	11	11	3	0.98	0.98	0.27
Bibb	3	7,075	0	7	6	2	0.99	0.85	0.28
Blount	3	10,136	24	6	6	2	0.59	0.59	0.20

*These data are given as an indication of the data available for each county in the United States. The full table can be obtained on request to the American Academy of Pediatrics, Study of Child Health Services, 2346 Massachusetts Ave., N. W., Washington 8, D. C.

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[13] Williams, C. L., Jr.; Hubbard, J. P., and Bain, K. Community Health Services in Eight Selected States, Am. J. Pub. Health 38:75-81 (Jan.) 1948.

to provide more physicians who are well trained in the medical care and health needs of children, especially in remote areas, and (2) to develop and implement recommendations made by state and local communities in order to provide better and more evenly distributed health services for all children, particularly in rural areas where adequate services are now deficient.

AORTIC PULMONARY ANASTOMOSIS IN CONGENITAL PULMONARY STENOSIS

Report of Forty-Five Cases

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and
STANLEY GIBSON, M.D.
Chicago

In November 1946, Potts, Smith and Gibson[1] reported a new surgical procedure for the relief of congenital pulmonary stenosis. The operation consists of a direct anastomosis between the aorta and a pulmonary artery. The use of the aorta was made possible by the invention of a clamp which permits blood to flow through this vessel while the anastomosis is being performed. This technic differs from the Blalock and Taussig[2] method only in the fact that the aorta itself rather than one of its branches is used to direct additional blood to the lungs.

Anastomosis between the aorta and a pulmonary artery has been performed on 45 patients, and in addition 7 patients have been explored in whom the anastomosis was not undertaken. We shall first discuss the criteria used in the selection of these patients for operation.[3]

DIAGNOSIS

In 48 of the 52 patients submitted to operation, the preoperative diagnosis was the tetralogy of Fallot. This syndrome is by far the most frequent condition in which the circulation to the lungs is inadequate. It consists of pulmonary stenosis, defect of the interventricular septum, aorta overriding the septal defect and hypertrophy of the right ventricle.

The characteristic clinical picture is that of a patient who is cyanotic, especially about the eyes, nose, mouth and tips of the fingers and toes. The eyes are suffused. The fingers and toes are clubbed. The patient is usually unhappy and irritable, and the state of nutrition is often poor. In some instances there is retardation in mental development. Physical examination reveals the heart to be normal in size or only slightly enlarged, with a systolic murmur best heard along the left sternal margin at about the second or third left interspace. Roentgenologic examination shows a heart that is boot shaped, the apex being blunt and rounded and the heart appearing to lie more or less transversely in the chest. The pulmonary fields show little vascularity. Fluoroscopic examination fails to reveal pulsations in the hilar regions, and in the left anterior oblique position the pulmonary window is abnormally clear. The electrocardiogram is characterized by pronounced axis deviation to the right. The red cell count and hemoglobin are elevated. The arterial oxygen saturation is diminished.

Such is the classic picture of the tetralogy of Fallot, and under such circumstances the diagnosis can be made with confidence. There are, however, many variations from this typical pattern, and on this account we shall discuss briefly a number of the diagnostic points which have been mentioned.

The degree of cyanosis varies widely. In some of the children, cyanosis was scarcely noticeable when the patient was at rest. There was likewise a wide variation in the red cell count and hemoglobin. In our series the red cell count varied between 5,000,000 and 10,000,000. Nor was there as close correlation between the red cell count and hemoglobin as one might expect. Moreover, the degree of cyanosis, the number of red blood cells or the amount of hemoglobin did not necessarily show a close relationship to the patient's limitation of activity. Some who were decidedly cyanotic with high red cell counts and hemoglobin were able to walk several blocks before becoming breathless. Others, who from their general appearance and blood examination would appear to be less severely handicapped, were able to walk only a few yards. The inability to exercise would seem to be the most important criterion in deciding whether operation is urgently indicated.

Examination of the heart usually reveals a systolic murmur which is best heard along the left sternal margin at about the second and third interspaces. Sometimes it is long, harsh and rasping, while in other instances it is short and of slight intensity. A thrill may or may not be palpable. Absence of a murmur is a cause for anxiety. Operation has been performed on 2 children in whom no murmur could be detected. In 1 a satisfactory anastomosis was completed, and the patient made an uneventful recovery. In the other, the pulmonary artery was too small to allow the anastomosis to be effected, and the patient failed to survive the exploration.

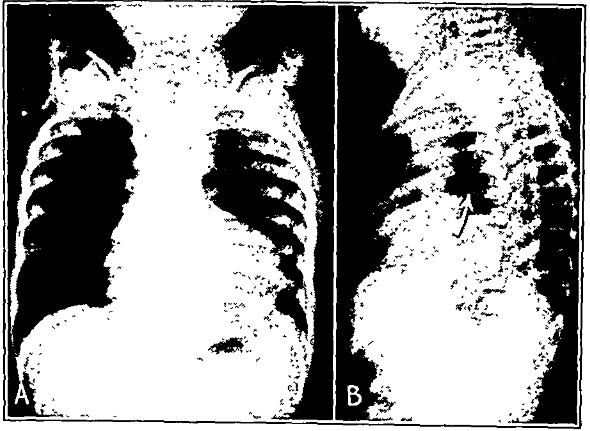

Fig. 1.—*A*, typical boot-shaped heart. *B*, left anterior oblique view, showing clear pulmonary window (indicated by arrow).

Autopsy revealed the characteristic features of the tetralogy save that pulmonary atresia rather than stenosis was present. A large interventricular septal defect was present, but in this instance at least, its presence had not resulted in an audible murmur. It is our belief that the first of these 2 patients also had pulmonary atresia, but was fortunate in that the pulmonary branches were sufficiently large to allow the anastomosis. Failure to hear a murmur should put one on his guard both as to diagnosis and prognosis, in the event that operation is decided on.

Roentgenologic study is perhaps the most important single feature of the examination. A 2 M. roentgenogram of the chest in the anteroposterior position almost

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From the Children's Memorial Hospital.

[1] Potts, W. J.; Smith, S., and Gibson, S.: Anastomosis of the Aorta to a Pulmonary Artery for Certain Types of Congenital Heart Disease, J. A. M. A. **132:** 627-631 (Nov. 16) 1946.

[2] Blalock, A., and Taussig, H. B.: The Surgical Treatment of Malformations of the Heart in Which There Is Pulmonary Stenosis or Pulmonary Atresia, J. A. M. A. **128:** 189-202 (May 19) 1945.

[3] In this connection we wish to state that Dr. Helen Taussig and her co-workers at the Johns Hopkins Clinic have taught us much in our frequent visits there.

always reveals a heart that is normal in size or only slightly enlarged. Gross cardiac enlargement militates strongly against the diagnosis of the tetralogy of Fallot. In no case in our series has the heart been estimated as more than 25 per cent enlarged.

The shape of the heart is subject to considerable variation. It is gratifying if the roentgenogram shows a heart that is boot shaped, appearing to ride high on the diaphragm, lying more or less transversely in the chest (fig. 1 *A*). However, the heel of the boot is often inconspicuous, and the heart may be found in its normal position with little blunting of the apex. In several instances our roentgenologist has pronounced the heart to be of normal size and shape. A slight concavity is usually present in the pulmonary area, or the contour may appear normal. Prominence in the region of the pulmonary conus indicates a large pulmonary artery and should immediately cast doubt on the diagnosis of the tetralogy of Fallot. The appearance of the hilar regions must also be noted. If there is evidence of increased vascularity, it is an important sign that the lungs are receiving a sufficient amount of blood.

Fluoroscopic examination is important in determining the amount of blood flow through the pulmonary arteries. With the eyes thoroughly accommodated search should be made for expansile pulsations in the hilar regions. Absence of pulsations is the rule in pulmonary stenosis. Their presence means that the flow of blood to the lungs is adequate. Fluoroscopic study of the patient in the left anterior oblique position is obligatory. In this position one is able to determine whether there is an abnormally clear area beneath the aortic arch; in other words, whether the pulmonary arteries are carrying less than the normal amount of blood. An abnormally clear pulmonary window is one of the most reliable signs of pulmonary stenosis (fig. 1 *B*).

The electrocardiogram usually shows an extreme degree of axis deviation to the right. In most instances QRS_1 is practically altogether downward with QRS_3 upright. P waves, particularly in lead 2, are high and pointed (fig. 2 *A*) Once the diagnosis of the tetralogy of Fallot has been made, it is still necessary to determine the position of the aortic arch before operation is undertaken. In 15 to 20 per cent of cases, the aorta descends on the right. In order to do the anastomosis one must enter the chest on the side on which the aorta lies. In our series a right aortic arch was encountered in 7 instances.

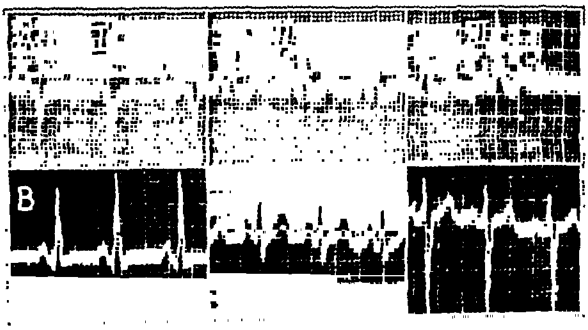

Fig. 2.—*A*, axis deviation to the right in tetralogy of Fallot. *B*, axis deviation to the left in tricuspid atresia.

The position of the arch can often be determined by simple inspection of the anteroposterior roentgenogram of the chest, particularly when it lies on the left. The aortic knob and the descending aorta may be well outlined. In other cases, one must use a barium swallow, and observe under the fluoroscope the deflection of the barium to the right or left. Indentation of the esophagus on the left indicates a left arch, and vice versa. In a number of young, uncooperative patients, we have found it helpful to administer a thick barium mixture with the patient lying supine and the foot of the fluoroscopic table elevated. A roentgenogram is made just after the patient has swallowed (fig. 3). In this way, the entire course of the esophagus can frequently be well outlined. (Some confusion has arisen from the use of the terms "dextroposition of the aorta" and "right aortic arch." Dextroposition of the aorta refers to the position of the aorta at its origin, and means that the aortic orifice is shifted to the right, overriding the accompanying interventricular septal defect and thus arising from both ventricles rather than the left ventricle alone. Dextroposition of the aorta is an integral part of the tetralogy of Fallot and carries no implication as to the position of the aortic arch, which may be either on the right or left.)

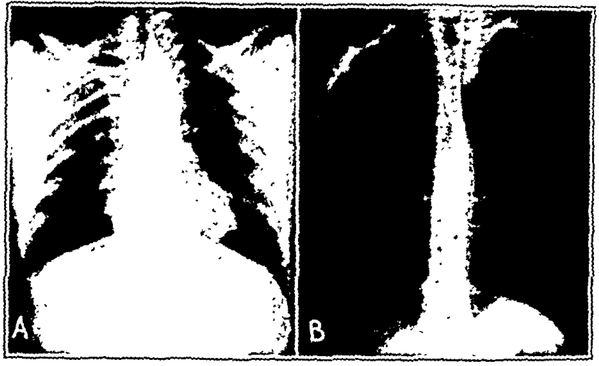

Fig. 3.—*A*, barium-filled esophagus with indentation on left indicating left aortic arch. *B*, indentation on right indicating right aortic arch.

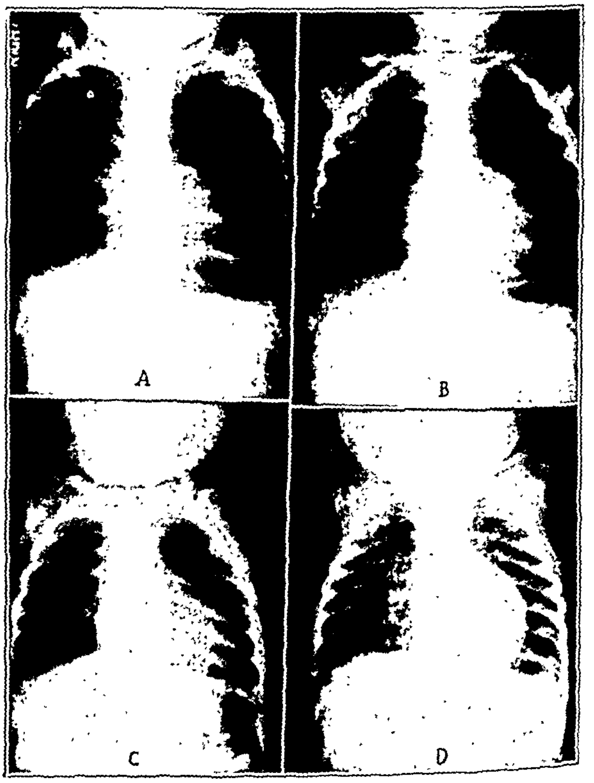

Fig. 4.—Anteroposterior roentgenograms of the 4 patients in whom a diagnosis of tricuspid atresia was made.

In 4 of the patients who came to operation, the clinical diagnosis was tricuspid atresia. A number of other characteristic defects usually accompany this lesion: namely, interauricular septal defect, defect of the interventricular septum, rudimentary right ventricle and hypoplasia of the pulmonary artery. The course of the flow of blood from the right auricle is as follows: through the interauricular septal defect into the left auricle, thence to the left ventricle, where a portion of the mixed blood from the left ventricle passes through an interventricular septal defect into the diminutive right ventricle and on into a more or less narrowed pulmonary artery.

The physical signs are identical with those encountered in the tetralogy of Fallot. There are the same cyanosis and clubbing, the same findings with respect to the blood and the same systolic murmur over the precordium. There are, however, two important features which serve to distinguish tricuspid atresia from the tetralogy. The roentgen silhouette in the anteroposterior view shows a gentle rounding of the left cardiac border due to hypertrophy of the left ventricle and an absence of the normal fulness of the region of the right ventricle (fig. 4). The second diagnostic feature is axis deviation to the left in the electrocardiogram (fig. 2 *B*). These features were present in all 4 of our patients. Three of the patients had a pulmonary artery sufficiently large to permit a satisfactory anastomosis, and all 3 made a satisfactory recovery with striking improvement. In the fourth case, the pulmonary artery was rudimentary, and no anastomosis could be done. The patient survived the exploratory operation.

In some cases of tricuspid atresia, there is no communication between the two ventricles and blood must reach the lungs by way of a patent ductus arteriosus. Such was not the case in any of our 4 patients. Inasmuch as the anastomosis is done in the immediate vicinity of the ductus, the question of its patency can be determined by inspection during the operation.

OPERATION

From Sept. 13, 1946 to Aug. 15, 1947, aortic pulmonary anastomosis for relief of cyanosis due to congenital pulmonary stenosis has been performed on 45 patients.* In addition, 7 patients were explored.

Although the technic of operation remains substantially the same as originally outlined, emphasis on important steps, clarification of misunderstood points and a description of slight modifications in technic will be reviewed.

In addition to careful selection of patients suitable for operation, skilful anesthesia is essential for operative success. The rather severe grades of anoxemia allow these patients a narrow margin of safety over which an expert anesthetist must carry them. Without the services of a well trained anesthetist, capable of giving intratracheal anesthesia, resourceful in emergencies and conscious of the significance of the slightest change in pulse, respiration and blood pressure, the mortality will rise appreciably. In no operation is the work of the anesthetist more important.

The child is placed in a lateral position on the operating table and the chest is entered through a posterolateral incision in the left fourth interspace if the arch of the aorta curves normally to the left (fig. 5 *A*). In case of a right aortic arch the incision is made in a similar manner on the right side.

Identification of the right or left pulmonary artery is usually not difficult. In some cases it is small and buried in masses of small tortuous thin-walled veins and fibrous tissue. Since the loss of blood is less hazardous to these plethoric children the veins are dissected from the pulmonary artery with a fair degree of confidence. The large veins are tied with fine silk; bleeding from the tiny veins is disregarded.

We use no sponges in the chest. The blood is lavaged away from the operative site with a stream of isotonic solution of sodium chloride removed with an aspirator. The chloride solution, delivered with an ordinary 50 cc. bulb syringe, not only is nontraumatic, but also is effective in removing the dark blood caught in the meshes of adventitia, thus making important structures identifiable.

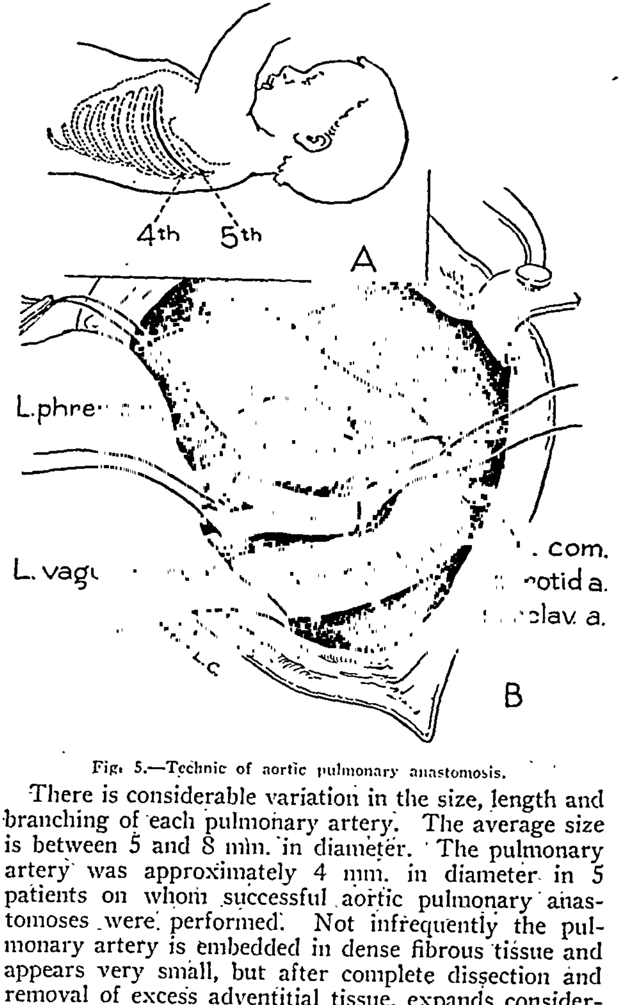

Fig. 5.—Technic of aortic pulmonary anastomosis.

There is considerable variation in the size, length and branching of each pulmonary artery. The average size is between 5 and 8 mm. in diameter. The pulmonary artery was approximately 4 mm. in diameter in 5 patients on whom successful aortic pulmonary anastomoses were performed. Not infrequently the pulmonary artery is embedded in dense fibrous tissue and appears very small, but after complete dissection and removal of excess adventitial tissue, expands considerably. In 1 patient the pulmonary artery was actually 18 mm. in diameter, measured with a caliper, twice the size of the adjacent aorta. The intrapulmonary pressure was practically zero and a successful anastomosis was performed with good results.

The left pulmonary artery is longer than the right and usually does not break up into branches before entering the hilus of the lung as does the right. The left pulmonary artery lies fairly near the aorta and courses in almost the same plane, whereas the right pulmonary artery lies near the inferior portion of the hilus of the lung and courses in a plane almost perpendicular to the aorta. It was feared that anastomosis of a pulmonary artery to an aorta lying at right angles to it would result in kinking and obstruction of the newly formed channel. This has not been true in 7 patients in this series who had right aortic arches and on whom successful anastomoses were performed. The pulmonary artery is very elastic and easily adjusts itself.

Worries about intrapulmonary pressure are for the most part needless. By observation of partial or complete absence of pulsations in the pulmonary artery and by palpation of the faintly beating vessel it is possible in most instances to decide promptly that the intrapulmonic pressure is below normal. If any question arises, the pressure can be determined easily by a simple water manometer consisting of a needle attached to rubber tubing to a calibrated pipet.

Doubly encircling ligatures of no. 00 oiled silk are placed around each branch of the pulmonary artery as it enters the hilus of the lung and around the pulmonary artery as far proximal as possible (fig. 6 *A*).

These ligatures are laid aside until ready for the actual anastomosis. The method of temporarily obliterating the pulmonary artery and fixing it with these ligatures to the aortic clamp during the anastomosis has been modified (fig. 6 *A*). One end of the ligature doubly encircling the distal branch of the pulmonary artery lying nearest the aortic clamp is threaded through the posterior flange of the distal portion of the clamp in one direction and through the anterior flange in the opposite direction. The other end of this same ligature is threaded through the flanges of the clamp in the opposite direction. The ends of the ligature are then drawn up snugly to appose the pulmonary artery to the aorta in the best possible position for anastomosis and tied just tightly enough to occlude but not injure the vessels. The ligature around the proximal portion of the pulmonary artery is attached to the flanges of the other end of the clamp in the same manner.

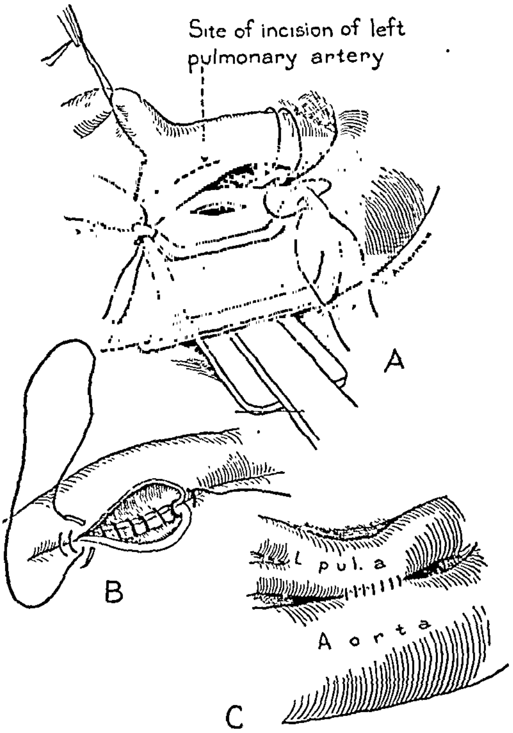

Fig. 6.—Technic of aortic pulmonary anastomosis.

There have been no changes in the aortic clamp. It is made in three sizes, small, medium and large. The medium-sized clamp is used for most patients. For children below 1 year of age, and for a few older children with rather small aortas, the small-sized clamp was used. The large clamp was used on 2 rather large children, both aged 12. It is imperative after the clamp is applied to the aorta and closed that a thrill be palpable in the aorta distal to the clamp in order that sufficient blood flow to the spinal cord is assured.

The site of anastomosis to the aorta is determined by the position of the pulmonary artery. This point is usually about 2 cm. distal to the origin of the subclavian artery.

The length of the incision in the aorta and pulmonary artery has been the subject of much discussion and concern. The desirable size of the final anastomotic channel will be dealt with later.

The technic of continuous, over and over suture with no. 5-0 Deknatel silk has not been changed (fig. 6 *B*)

On completion of the anastomosis and release of the ligatures and clamp, there has been in each case a continuous palpable thrill over the site of the new channel, indicating that blood was flowing through (fig. 6 *C*). In 3 patients one extra stitch was necessary to stop bleeding from the suture line.

On completion of the operation the lungs are carefully and fully expanded. In the sixth intercostal space a small stab wound is made in the chest and a de Pezzer catheter, so cut as to leave only a flange, is pulled through the chest wall from the inside out to provide drainage. The ribs are apposed with two heavy catgut sutures encircling adjoining ribs. The periosteum is dissected from the lower margin of the rib at the point where the catgut is to be introduced so as to avoid pressure on the intercostal nerve. The muscle layers are closed with running surgical gut sutures and the skin with silk.

The child is returned to its room and placed in an oxygen tent for a day or two. The chest drain is connected with a water seal and left in the chest three days. Penicillin, 30,000 units every three hours, begun two days before operation, is continued after operation for seven to ten days routinely.

Postoperative complications have been few. One or two aspirations of fluid and/or air from the chest were necessary in 4 patients. All occurred in the early cases before it became routine to place a drain in the chest at the close of operation. Severe tracheobronchitis with laryngeal edema necessitating tracheotomy occurred in 2 patients. Three patients had mild tracheobronchitis which was relieved by a day or two in the steam room. One of these children had an associated collapse of the upper lobe of the left lung which reexpanded without difficulty. Cerebral anoxia in 1 patient caused total paralysis for three days. Recovery was complete. The average period of hospitalization after operation was fifteen days.

MORTALITY

Aortic pulmonary anastomosis has been performed on 45 patients, of whom 4 died, a mortality of 8.8 per cent (the table). Of 10 children in the first group, 3 were below 1 year of age—4, 6 and 8 months respec-

Mortality Statistics

Ages	Number of Patients	Deaths	Mortality, Percentage
4 mo. to 2 yr.	10.	1	10
2 to 5 yr.	19	2	10.5
5 to 13 yr.	16	1	6.3
Total	45	4	8.8

tively. In the first 11 patients operated on there were 3 deaths; in the next 34 patients there was 1 death.

The first death, in a child aged 11 years, previously reported, was due to cerebral thrombosis. She had had hemiplegia since infancy. The second death, in a child aged 1.5 years, was likewise due to cerebral thrombosis. This child also had had a cerebral accident four months before operation. The third death, in a child aged 2.5 years, was due to postoperative shock and tension pneumothorax consequent to apical tuberculosis unrecognizable preoperatively. These 3 children died within twenty-four hours after operation. Hemorrhage into the hypothalamus was the cause of the fourth death, which occurred three days after operation.

Seven operations proved to be exploratory only. One child had an unrecognized Eisenmenger complex not remediable by surgery. The other 6 were hopeless from a surgical point of view because only strandlike pulmonary arteries carrying no blood were found at operation. Three of this group of 7 failed to survive the unavoidable increased anoxemia attendant on opening the chest. In fact, 2 died on the operating table and the third died in two days without regaining consciousness. Two of these children were in no worse condition preoperatively than many in the previous group on whom an anastomosis could be performed and who made uneventful postoperative recoveries. The third was a very poor surgical risk. Postmortem findings in all were essentially similar, confirming the operative diagnosis of undeveloped nonfunctioning pulmonary arteries due to pulmonary atresia. Bronchial arteries arising from the ascending and descending portions of the aorta were the only carriers of blood to the lungs.

Considering the patients who died after exploration only, in contrast with patients in similar preoperative condition who survived aortic pulmonary anastomosis, this observation presents itself: The child who has a pulmonary artery suitable for anastomosis has postoperatively an increased flow of blood to the lungs and can survive the shock of an open chest and temporary occlusion of a pulmonary artery, whereas the child who has an inadequate pulmonary artery and consequently cannot receive the benefit of anastomosis and increased blood flow to the lungs withstands the shock of an open chest poorly.

COMMENT

Of 41 patients who survived surgery, 39 have been tremendously improved; i. e., they are relieved of cyanosis, have gained weight and are able to live fairly normal lives. Two patients are improved; their cyanosis is only partially relieved and on exertion they still become somewhat cyanotic. It is only a year since the first child was operated on, so that no conclusions can be drawn as to ultimate prognosis. No child has died since discharge from the hospital. To date endocarditis has not developed postoperatively. That the anastomotic channels are remaining open and functioning is known from the persistence of a soft systolic and diastolic humming top murmur heard in all children examined and from the fact that cyanosis has not recurred.

Selection of patients for operation has been on the basis of diagnosis alone. No child has been refused surgical treatment regardless of a seemingly hopeless prognosis if the preoperative diagnosis indicated a decreased flow of blood to the lungs probably remediable by surgical treatment. Six of the patients operated on were in such a severe state of anoxia that they could barely sit up in bed, and 3 had to have intermittent or continuous oxygen. Anastomosis was possible in all these children, and oddly enough all survived.

It must be appreciated that children who have had an aortic pulmonary anastomosis for pulmonary stenosis have not been restored to normal. The basic pathologic condition remains in their hearts and extra work is added by the creation of an artificial ductus arteriosus. However, the children are comfortable and happy and their mothers have been relieved of constant anxiety.

The average preoperative red blood cell count was 7,930,000. Two weeks after operation it had fallen to 5,620,000. The hematocrit reading dropped from an average of 64.4 per cent preoperatively to 51 per cent two weeks after operation. The oxygen saturation level of arterial blood was raised an average of 30 per cent. The greatest change was in the tolerance of exercise. Before operation many children were unable to walk more than a few yards. After operation they could walk as far as their undeveloped legs would carry them. Some of the clubbing of the fingers and toes disappears during the first two weeks after operation, and the balance is gone by four to six months.

It has not been possible to follow all the children postoperatively, because many live far from Chicago. In those that have been followed there has been in every instance some enlargement of the heart. This enlargement has not been progressive but seems to become fixed within a month or two. In 3 children there has been pronounced enlargement of the heart. No signs of heart failure have developed but we are fearful that they may appear in the relatively near future.

How large should the anastomotic channel be made? Should it be smaller in a 1 year old than in a 12 year old child? Will the opening grow larger as the child grows? The final answer to these important questions awaits years of clinical experience and further experimental work. The objective sought is a ductus large enough to divert sufficient blood to the lungs to relieve cyanosis but not so large as to cause undue cardiac strain. Originally, we decided on 5/16 inch (8 mm.) as the proper length for the incisions in the aorta and pulmonary artery. Obviously the length of the incision is not the diameter of the final opening. By multiplying 5/16 inch (8 mm.) by 2 and dividing by 3.1416 we arrive at the final diameter of the newly formed ductus, or *slightly less than 1/5 inch* (5 mm.). All measurements are made with a caliper.

Recently we shortened the incisions to 1/4 inch (6.3 mm.), thus forming a final anastomotic channel of approximately 4 mm., or slightly less than 1/6 inch, *in diameter*. When one is dealing with structures which vary in elasticity and thickness it is improper to assume that mathematical accuracy is possible. Furthermore, accuracy of suturing, especially at the corners, is a large factor in determining the size of the newly formed ductus arteriosus.

SUMMARY

Essential points in the diagnosis of the tetralogy of Fallot and tricuspid atresia are discussed. Important features of the technic of aortic pulmonary anastomosis are reviewed. Aortic pulmonary anastomosis has been performed on 45 patients with 4 deaths, or a mortality of 8.8 per cent.

GUEST PASSENGER INJURIES

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Accidental injuries to occupants of the front seat of automobiles are so typical that they can be classified into two groups. The injuries sustained by the driver have become known as "steering post injuries" and those sustained by others in the front seat are classified as "guest passenger injuries."

Steering post injuries are caused by sudden stops when the driver is forced against the steering wheel. Frequently the chin is lacerated, the mandible may be fractured, and in more severe injuries the maxilla and nose may be involved. Chest, knee and ankle injuries are also common.

Drivers nevertheless occupy the safest seat in the car; protected by the steering wheel, they escape injury in many severe accidents.

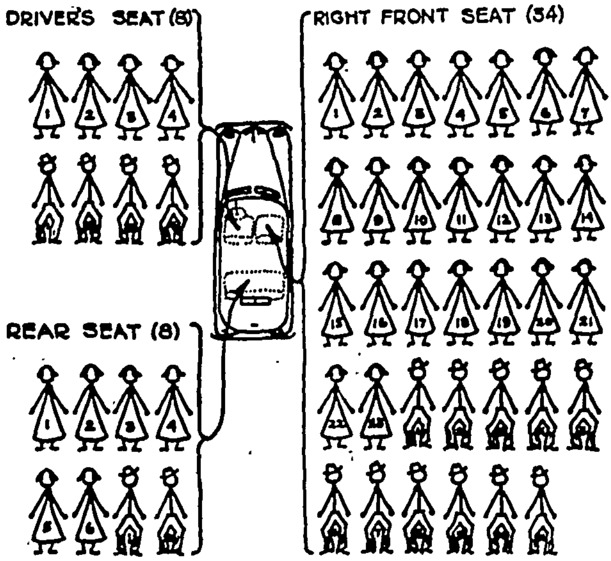

Fig. 1.—This chart shows the position in the car of 50 consecutive persons that consulted me for treatment of facial injuries. Eight were drivers; 8 were in the rear seat; 34 were in the guest passenger seat. Twenty-five of these were women.

"Guest passengers" in the front seat beside the driver are on the contrary in the most dangerous seat in the car because of their unprotected position in case of sudden stops. Children sitting on mothers' laps or standing in the front are frequently injured and occasionally killed when sudden stops cause crushing injuries on the dashboard. Occupants of the "death seat" are injured in the proportion of about 3 to 1, as compared to drivers (figs. 1 and 2). Some years ago I investigated 50 consecutive patients with facial injuries from automobile accidents who came to the clinic for plastic surgery. About 70 per cent were young girls and women who had been riding beside the driver in the front seat. They had various types of "guest passenger" injuries (fig. 1).

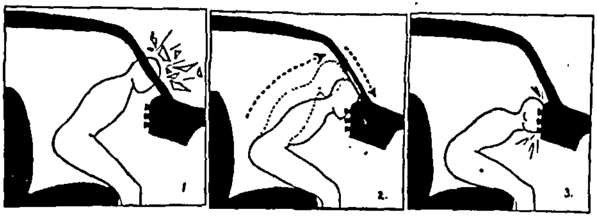

Fig. 2.—Three typical types of guest passenger injuries: Type 1. The head is thrown up forward breaking the windshield; head and neck cuts usually result. Type 2. Combination windshield cuts and crushing facial injuries result from these glancing blows. Type 3. Crushing and tearing injuries result from contact with gadgets on the instrument board.

With the advent of better roads and high speed transportation, guest passenger injuries are becoming even more numerous and severe, and deaths more common. To determine more accurately the seriousness of the problem, I secured the cooperation of Inspector Louis J. O'Brien, head of the Accident Prevention Bureau of the Detroit Police Department, who kept a record of all the passenger car accidents involving personal injuries during September 1947. These statistics support former conclusions (as derived from a study of figure 1) and show an even more serious picture from the passenger's standpoint (table 1).

TABLE 1.—*Comparison of Injuries to Drivers and to Passengers in Private Passenger Cars, September 1947**

Accidents 444 Cars Involved 480 Injured 633

	Number Cars	Drivers Injured	Passengers Injured
Driver Alone	178	178	---
Driver with Passengers	13	13	0
	219	0	260
1. Passenger	168	52	159
2. Passengers	62	15	81
3. Passengers	44	11	71
4. Passengers	15	2	26
5. Passengers	9	2	20
6. Passengers	3	1	11
7. Passengers	1	0	4

*Compiled from a report of the Accident Prevention Bureau, Detroit Police Department.

According to Detroit traffic engineer surveys, in normal traffic, in 61 per cent of cars the driver was alone. No one had ever kept statistics (so far as I can determine) on the number of cars involved in accidents that were driven alone. This information was vital in the study of the guest passenger problem and therefore was considered in the one month survey made for me by Inspector O'Brien.

The One Month Survey of Accidents

This survey shows that in 178 of 480 cars, 37 per cent, the driver was the sole occupant (table 2). One hundred and forty drivers suffered body injuries; 85 head injuries, and 36 injuries to both body and head.

From the Straith Clinic for Oral and Plastic Surgery.

A startling contrast is shown by the fact that in 219 accidents involving multiple occupants, 260 passengers but no drivers were injured! There were only 13 accidents in which drivers were injured but passengers remained unharmed, [1] (table 1).

These figures emphasize the great danger to passengers in the "death seat" and the need for better interior design in automobiles to reduce this hazard.

TABLE 2.—*Comparison of Injuries as Related to Location in Car**

	Total Injuries	Head Injuries	Body Injuries	Both Injuries
Drivers	261	85	140	36
Passengers in front	248	99	122	27
Passengers in rear	124	42	67	15

*Compiled from a report by the Accident Prevention Bureau, Detroit Police Department, on injuries sustained in private passenger car accidents, September 1947.

Since this study is devoted especially to injuries of guest passengers occupying the front seat, it is noted that 372 persons were injured in 289 cars carrying passengers. Two hundred forty-eight, or 69 per cent, of these were riding in the front seat. More than one half of these suffered head injuries. It is this group that I wish to refer to in particular.

Head Injuries

Head injuries are caused when the passenger is thrown forward: (*a*) into the windshield (type 1); (*b*) into the windshield, the head being deflected downward on the dash (type 2); (*c*) directly against the dash (type 3) (fig. 2).

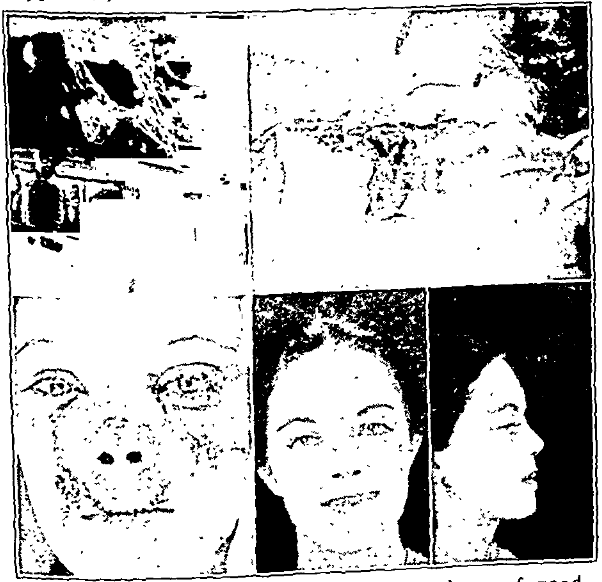

Fig. 3.—This guest passenger's head was forced through the windshield and the nose and upper lip were almost severed. Front and profile views show patient after scar excisions and insertion of preserved cartilage transplants to rebuild the nose.

Type 1.—The head frequently crashes through the windshield and the face comes in contact with jagged glass. Almost complete decapitation has been known to occur in this type. Forehead injuries are numerous and cuts in the upper and middle third of the face are most common (fig. 3). Frequently the nose is severely lacerated or a portion may be severed. Portions of the forehead, cheek or ears may be similarly detached by jagged glass.

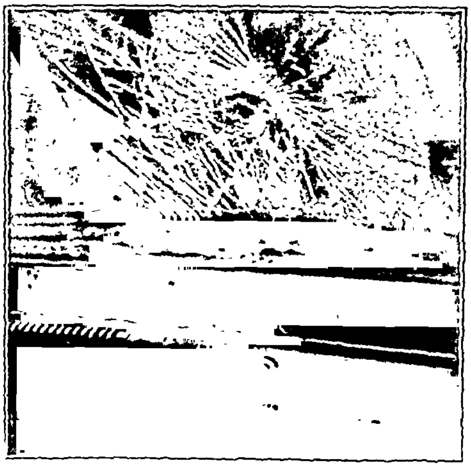

Fig. 4.—Type 2 injury. In this car the guest passenger was riding in a funeral procession at 20 miles per hour. A sudden stop caused her head to hit the windshield, cutting her forehead and causing her nose to be cut and crushed on the sharp edge of the dash.

Type 2.—Glancing blows from the windshield to the dash often cause both cutting and crushing injuries. Excessive speed is not always a factor, as evidenced by the patient who was riding in a funeral procession at the rate of only 20 miles (32.2 kilometers) per hour (figs. 4 and 5). Knobs, cranks, sharp ledges, etc., on the dash often do considerable damage in this type. Teeth are frequently dislodged in children and adults and many facial lacerations sus-

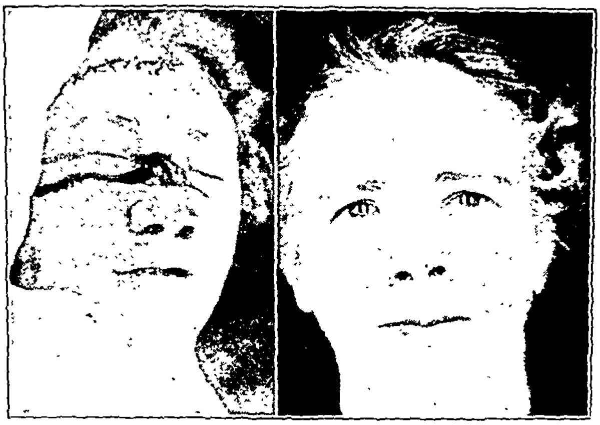

Fig. 5.—This patient hit the windshield and came down with crushing force on the sharp edge of the dash. Wounds were sutured by Dr. Richard E. Straith with subcuticular stitches (after removing emergency interrupted sutures shown in first photograph). Crushed nasal bones were supported by my special splint, which was fixed to a head cast.

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[1] The complete detailed police report will be furnished by me on request.

tained by contact with dashboard projections (fig. 6).

Type 3.—Infants and children are often injured and occasionally killed by crushing impact of skulls or faces on the dash. Teeth are frequently knocked out and faces cut on projecting knobs, cranks, "drop open" ash trays, etc. In more severe impacts the nose is frequently crushed; the malar and the upper jaw are frequently fractured, leaving pronounced facial deformities (figs. 7, 8 and 9).

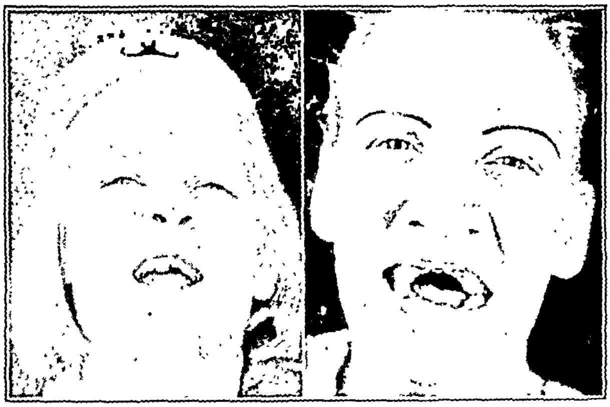

Fig. 6.—Children are in the most dangerous position in the car when riding on mother's knee or standing up in front. Frequently childrens' teeth are broken off by hitting the dash in sudden stops, as happened to this child. The adult suffered a type 2 accident, her mouth coming down on a radio knob on the dash. Such projections should be eliminated and the dash should be crash padded to avoid such injuries.

Figure 9 shows the rather typical result of an accident. Note the slight steering post injury sustained by the driver (cut on chin) whereas the guest passenger received a crushing injury due to her impact on the dashboard.

Enforcement, Education and Engineering

For years traffic engineers have been talking about "engineering" with the three "E's": enforcement, education and engineering. To reduce this staggering toll of accidents and deaths, there must be cooperation in these phases.

Enforcement.—There must be enforcement of speed and other necessary traffic regulations. In all traffic surveys, speed is still rated as the greatest cause of accidents.

Education.—Since the age group from 18 to 24 produces the greatest number of accidents, education of youths at high school age is of paramount importance. Boys especially should be shown that, as drivers, they are in the safest seat in the car! What poor sportsmanship it is to drive recklessly and endanger the lives and faces of young girls who are usually the unlucky "guest passenger" victims!

There is no doubt, from the records of the patients at the Straith Clinic, that drinking was responsible for many accidents. Even distillers themselves advise every one to abstain from drinking for at least two hours before driving. If this rule were followed fewer accidents would result.

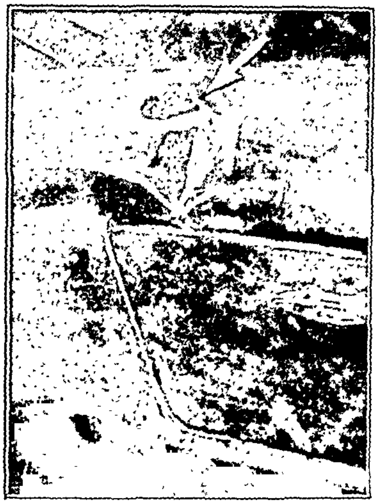

Fig. 7.—Type 3 injury left the impression of this woman's upper teeth in the instrument panel. At one point (arrow) a tooth actually penetrated the steel dash. The facial bones were crushed almost to pulp. Note deformity resulting as shown in figure 8.

Mothers should know that babies held on their knees occupy the most dangerous place in the car. They should hold children firmly if riding in the front seat or place them in proper carriers. Children should be kept from standing in the front (if possible, though I am well aware of the difficulty in doing this).

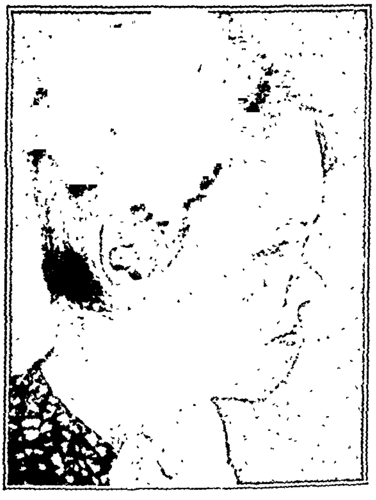

Fig. 8.—Practically all the facial bones were fractured due to the impact on the dash as shown in figure 7. In spite of all efforts to maintain the fragment in position, this deformity resulted.

Engineering.—For the protection of the drivers, collapsible steering posts have been advocated. The horn rim could be placed on the underside of the wheel to prevent injury to face or chest in case of breakage. Raising and padding the lower edge of the dash would lessen knee injuries, and fewer floor pedals might minimize ankle injuries.

Since it is obvious that "guest passengers" are in the most dangerous position in automobiles, more attention should be paid to safety features in this part of the car.

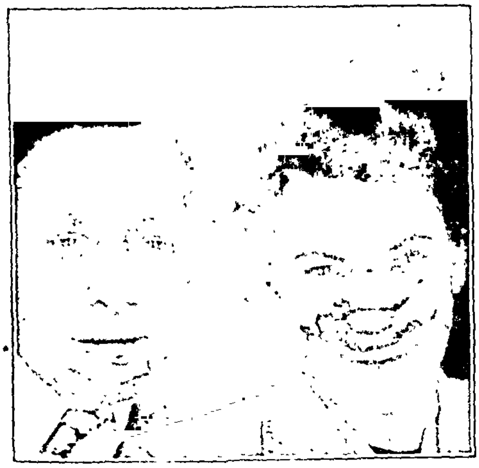

Fig. 9.—These patients were forced off the road by an oncoming drunken driver. Though they had almost stopped, they hit a parked car. Note the typical slight chin injury sustained by the driver ("steering post injury") and the crushing "guest passenger" injury sustained by his wife, whose face struck the dash.

I have advocated[2] the removal of all knobs, cranks, drop down ash receivers, sharp ledges, etc., from the dash and the incorporation of rubber crash padding in front of the guest passenger. (Elimination also of sharp ash receivers and heavy robe rails and other attachments from the back of the front seat and provision of padding for the back edge of the front seat would minimize injuries to passengers in the back seat, who are frequently thrown forward.)

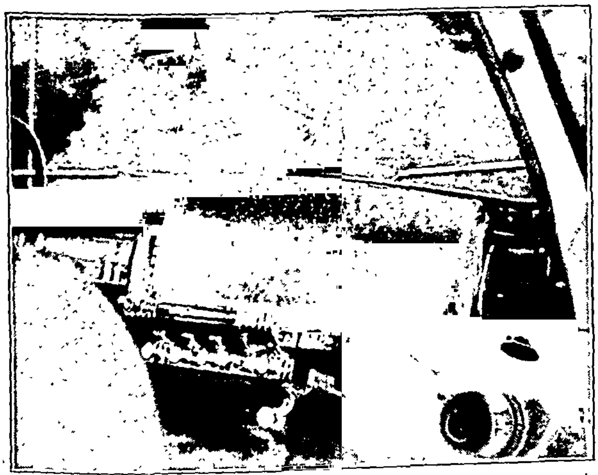

Fig. 10.—This is the latest model of my crash pad which I have used for years on my cars. It can be adapted to any car, is hinged at the top for easy access to the glove box and offers adults and children much protection.

Hinging the windshield so that it would be forced outward by a force just short of the glass breaking point has been suggested. This would substitute the danger of a passenger's going through the opening and is therefore of questionable value.

For many years I have used, in my cars, a detachable crash pad to cover the dash in front of the guest passenger. If such a device were in common use, or crash padding incorporated in the dashboard, the facial injuries described would be reduced immensely (fig. 10). Children could ride in the front seat with less danger and with infinitely less anxiety on the part of the parents (fig. 11). Fortunately some car manufacturers are becoming more aware of these dangers to the guest passenger and are eliminating dangerous projections from the dash. Some are at long last adding crash padding to the instrument panel. It is hoped that others will follow suit to help reduce the staggering toll of accident victims.

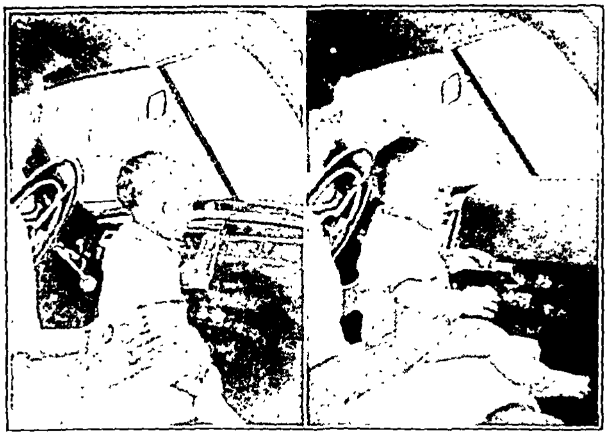

Fig. 11.—Babies on mothers' knees are in the most dangerous place in the car. Many have been killed by sudden stops, crushing their heads on the dash. The second photograph demonstrates the protection which children and adults should have when the crash pad is covering the dash.

Pneumonic Plague.—Rangoon has been "infected" off and on for the last quarter of a century, the reserviors being rats and bandicoots. The pneumonic form, however, is rare. When recaptured in May, 1945, Rangoon was a severely devastated city and rehabilitation proceeded slowly... Optimal conditions existed for the multiplication of rodents, and experienced observers were of the opinion that rats and bandicoots had never been so prevalent. Plague infection was confirmed among both species in 1945, but no sign of an epizootic was found. Human cases of bubonic plague in the city numbered 151 between May, 1945, and mid-August, 1946. The city was free from infection from the middle of August until late September, 1946. The village where the present outbreak began had shared in the bubonic epidemic in the spring, 17 cases being reported up to early April. Since that time the village also had been free from the infection. Pneumonic plague was not suspected until 10 persons had died, largely because the health authorities did not know the facts until a late date. The initial focus was the compound of a small soap factory in a village on the fringe of the city.—Wynne-Griffith, G., Pneumonic Plague in Rangoon, *Lancet*, April 24, 1948.

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[2] Straith, C.L.: The Treatment of Facial Wounds Due to Motor Accidents, J.Michigan M. Soc., 34:64 (Feb.) 1935; Facial Bone Injuries, Dent. Digest (Oct.) 1933; Management of Facial Injuries caused by Motor Accidents, J.A.M.A. 108: 101 (Jan.9) 1937; Automobile Injuries, J.A.M.A. 109:940 (Sept. 18) 1937; The Treatment of Crushing Facial Injuries, Proc. Inter-State Post-Grad. M. Assemb. North America, pp. 292-294, 1943.

TULAREMIA IN THE OZARKS REGION

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In 1944 Heilman[1] demonstrated the sensitivity of Pasteurella tularensis to streptomycin under experimental conditions, and fifteen months later its clinical use in tularemia was reported by Foshay and Pasternack,[2] who noted the rapid regression of symptoms in 7 patients with ulceroglandular tularemia. Pulaski and Amspacher[3] reported successful treatment with streptomycin in 10 cases which occurred in United States Army hospitals, and Hunt[4] reported 12 cases of pleuropulmonary involvement in which streptomycin therapy was used, with prompt recovery in all except 1 case, in which death was attributed to pulmonary embolus. Seven cases of laboratory-acquired infection, successfully treated by streptomycin, were presented by Howe.[5] The National Research Council reported the treatment of 67 patients with 63 recoveries.

Before streptomycin became available, 27 patients with tularemia were seen at this hospital, and subsequently 27 patients have been treated with streptomycin. The purpose of this paper is to summarize the outstanding features of these 54 cases.

EPIDEMIOLOGY

The incidence of tularemia in this Ozarks region is increasing. In the interval from 1936 to 1940, 7 cases were recorded. From 1941 to 1944, 9 cases were seen and from 1945 to date 38 cases have been treated. Twenty cases have been seen thus far this year. Forty-one of the patients came from Northwest Arkansas and 13 from Southwest Missouri.

There was a definite seasonal incidence among these cases. Cases occurred during every month of the year; however, contrary to the observations of some authorities, 55 per cent occurred during May, June and July.

In contrast with statements concerning the most usual sources of the disease and the mode of transmission, it has been observed here that the source of the disease in 63 per cent of these cases was tick bites; in 14 per cent it was contact with rabbits, and in 4 per cent contact with squirrels. One patient gave a history of sticking a thorn in his finger at the site where the primary ulcer developed subsequently. The source of infection in 18 per cent of the cases was unknown. It was interesting to note that in each instance in which contact with an animal was considered the source of the infection, the patient gave a history of having had an abrasion at the site of the primary lesion previous to contact with the animal.

The incubation period, when it could be determined, varied from one to twelve days; however, 62 per cent were from one to three days. Five patients found ticks on their bodies at the site of the ulcer on the day of onset of symptoms. One unusual case presented an ulcer on the glans penis, hidden by the prepuce, with a tick imbedded in the center of the ulcer crater, of which the patient was unaware.

SYMPTOMS

The symptoms most commonly observed were malaise, chills, fever, generalized aching, anorexia, headache, sometimes nausea and vomiting and occasionally delirium. Rarely a rash of variable type appeared. The maximum temperature varied from 100 to 105 F., the average being 103 F. In most cases it remained more or less continually at a high level until the proper therapy was instituted. In some cases it exhibited regular remissions as seen in brucellosis. The pulse rate was usually proportional to the fever. The sedimentation rate was elevated, and in most cases there was leukocytosis. The white blood cell count ranged from 5,000 to 20,000, the average being 12,000. The differential white blood cell count was usually normal, but sometimes showed an increase in polymorphonuclear leukocytes. The spleen was sometimes enlarged.

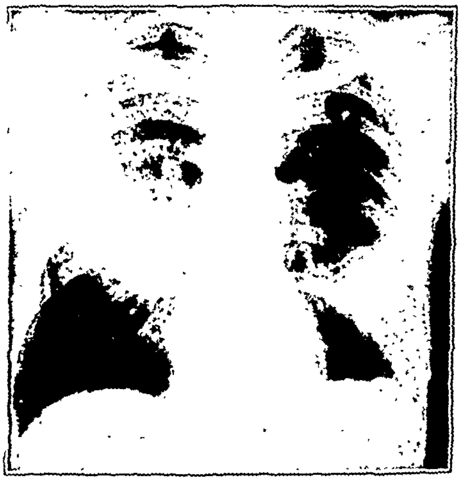

Fig. 1.—Severe bilateral tularemic pneumonia with fatal outcome.

The site of the tick bite or contact with the animal was most commonly on the extremities with regional adenitis, with the lesions occurring as frequently on the lower extremities as on the upper. Ulcers did occur on the scalp, chest, abdomen, in the axillas and frequently on the penis or scrotum. In half of the cases with ulcers of the upper extremities epitrochlear adenitis developed. The unusually high frequency of the ulceroglandular pathologic changes occurring in the lower extremities, genitalia and abdomen (50 per cent) was undoubtedly due to the fact that ticks frequently attach themselves to the lower portions of the body.

Types of Tularemia

	Number of Cases	Percentage
Ulceroglandular	37	70
Pneumonitis alone	9	17
Typhoidal	1	0.5
Glandular	3	5.5
Oculoglandular	2	3.5
Ulcer alone	2	3.5
Total with pneumonitis	16	30

The cases of ulceroglandular and oculoglandular disease were *nearly always correctly* diagnosed promptly. In many cases, even before the reaction to the agglutination test was reported positive, the diagnosis had been made and the therapy started. However, the diagnosis

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1. Heilman, F. R.: Streptomycin in the Treatment of Experimental Tularemia, Proc. Staff Meet., Mayo Clin. **19:** 553, 1944.

2. Foshay, L., and Pasternack, A. B.: Streptomycin Treatment of Tularemia, J. A. M. A. **130:** 393 (Feb. 16) 1946.

3. Pulaski, E. J., and Amspacher, W. H.: Streptomycin Therapy of Tularemia in U. S. Army Hospitals, Am. J. M. Sc. **214:** 144, 1947.

4. Hunt, J. S.: Pleuropulmonary Tularemia, Ann. Int. Med. **26:** 263, 1947.

5. Howe, C., and others: Streptomycin Treatment in Tularemia, J. A. M. A. **132:** 195 (Sept. 28) 1946.

in the cases of other types of the disease, particularly the pneumonic and typhoidal forms, was frequently delayed until therapeutic measures (e. g. penicillin for the cases of pneumonic disease) had failed and agglutination tests were done.

Case 1.—The patient, a farmer aged 21 years, was admitted to the hospital in an acutely ill condition, complaining of pain and swelling of the left eye and eyelid. A few days prior to admission he had experienced general malaise, and twenty-four hours later the left eyelid and periorbital region began to swell, associated with fever. He had found several ticks on his body a few days prior to the illness, but he did not recall having been bitten, and was not in contact with animals. He was not aware of having had a foreign body in the eye.

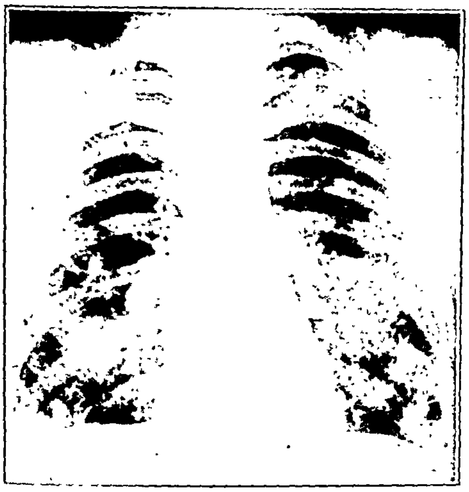

Fig. 2.—Tularemic pneumonia; rapid recovery occurred under streptomycin therapy.

Physical examination disclosed an acutely ill patient with a swollen and diffusely red left upper eyelid. The conjunctival surface of the lid exhibited a yellowish adherent membrane; the conjunctiva was red and edematous and the eyeball itself showed superficial injection. The fundus was not visible because of vitreous opacity. The right eye appeared normal. There was moderate edema of the left lower part of the face and upper part of the neck with pronounced cervical adenopathy. The temperature was 103 F. and the pulse rate 80. The white blood cell count was 7,100, with 70 per cent neutrophils and frequent smears and cultures of the eye were negative. A roentgenogram of the chest was normal, as was the urine. Because of suspected diphtheria, the patient received diphtheria antitoxin, which proved of no value, and his temperature ranged in a daily peak from 102 F. to 104 F. Six days after admission the agglutination reaction for tularemia occurred in a dilution of 1:80, and one week later it occurred in a dilution of 1:1,280. He was started on 0.4 Gm. of streptomycin every four hours, and the temperature immediately fell to normal, where it remained. The ocular symptoms subsided dramatically, but several cervical nodes became fluctuant, requiring surgical drainage. The streptomycin was continued until a total of 14 Gm. had been given. Recovery has been complete.

DIAGNOSIS

The definite diagnosis of tularemia depends on the agglutination tests. In many cases the serologic reaction was positive in high dilutions on the first examination. Any definite agglutination, even in the lowest titers, is significant; however, a positive diagnosis depended on a high or a rising titer. The highest titer among these cases was 1 to 42,240. Cross agglutinations in low dilutions with Brucella antigens were sometimes observed. It is commonly believed that the agglutination reaction becomes positive in the second week of the disease, but it was noted here that this interval varied widely. The interval ranged from eight to forty-three days, the average being fourteen days. In one fifth of these cases the agglutination reaction did not become positive before three weeks. Streptomycin did not appear to inhibit the development of specific antibodies.

TREATMENT

In April 1946 streptomycin became available for use at this hospital under the supervision of the National Research Council.

The course and prognosis of tularemia has been greatly affected by streptomycin. Prior to April 1946, 27 cases of tularemia had been observed, and since that time streptomycin has been used in 27 cases. Previous to this form of therapy, the morbidity after admission to the hospital varied from five to forty-five days, the average febrile period being fourteen days. Treatment varied, but in some cases included serum therapy and intravenous administration of bismuth sodium tartrate in addition to supportive care. In these 27 cases the mortality rate was 11 per cent. Twenty-two per cent of the patients had pneumonia, half of whom died. In addition to this long morbidity and high mortality convalescence required months, and relapses were common.

When streptomycin was used the morbidity dropped to an average of one day; with a maximum of six days. In most cases when a therapeutic blood level was attained, fever and other symptoms subsided dramatically. One patient was extremely ill and irrational on admission, and a history could not be obtained. Within twenty-four hours after treatment with streptomycin was started he had improved so dramatically that his only remaining complaint was weakness.

Of the 27 patients treated with streptomycin, 10 had pneumonia, and there were no deaths. In a few of these cases streptomycin was started before the agglutination test became positive in result. It is important to realize that the course of the illness may be far advanced before the agglutination becomes positive. Thus in cases of atypical pneumonitis in this region, in which a tularemic etiology is suspected, the use of streptomycin may be justified in face of a negative agglutination reaction, particularly when other antibiotics have failed.

Case 2.—A white farmer aged 28 years was in good health when he cleaned a rabbit, seven days before he entered the hospital. At that time he had a small abrasion on his left index finger. Two days later he noted pain, swelling and purulent drainage about the abrasion, associated with swelling and tenderness of the epitrochlear and axillary lymph nodes. When seen by his family physician he had a temperature of 103 F. and had vomited several times. The physician administered sulfonamide compounds and salicylates; however, the symptoms continued until admission here.

Examination revealed an acutely ill, febrile patient. His temperature was 101 F., his pulse rate 90 and his respiration rate 24. The skin was hot and dry. There was a small tender, crusted abrasion on the dorsum of the left finger which was swollen and inflamed. There were several large, soft, tender epitrochlear and axillary lymph nodes on the left side which were freely movable. The heart, lungs and abdomen were normal.

The initial impression was tularemia of the ulceroglandular type. The patient's temperature rose to 103 F. A roentgenogram of the chest was normal, and on the day after entry the agglutination test for tularemia was negative in reaction. Two days later the reaction was still negative; the patient was started on specific therapy and within twenty-four hours his temperature had declined to 99 F.; it remained below this level thereafter. On the sixth day the agglutination reaction was still negative, but on the following day (i. e., fourteen days from the onset of symptoms) it became positive in a dilution of 1:10. Six days later it became positive in a dilution of 1:1,280. The patient had recovered long before and was discharged cured.

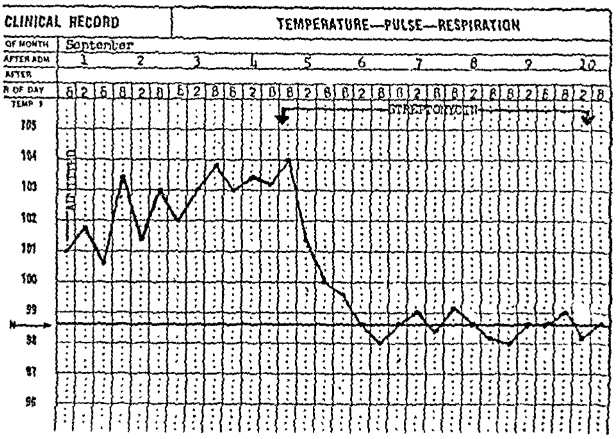

Fig. 3.—Temperature graph illustrating rapid response to streptomycin in a case of severe ulceroglandular tularemia.

Because the optimum dosage of streptomycin had not been established, dosages were varied according to the type and severity of the disease and the patients' response to therapy. The most common schedule was 1.0 to 1.25 Gm. daily in divided doses every three or four hours. A few cases, in which the desired response was not obtained on this program, exhibited prompt resolution of symptoms when medication was increased. Total dosage in cases of ulceroglandular disease varied from 3.75 to 14 Gm., the average being 7 Gm. Three patients received only 5 Gm. with good results. In the pneumonic forms the average dose was also 7 Gm., with a range of 5 to 14 Gm. Likewise, 3 patients with pneumonia were treated satisfactorily with 5 Gm. of the drug. Results obtained from the various dosage schedules were all essentially the same; i. e., excellent.

The resolution of the pneumonic process is slow regardless of treatment with streptomycin. This drug stopped the extension of the pulmonary pathologic changes, but the process of resolution usually required two to three weeks, and occasionally a residual fibrosis remained indefinitely.

Healing of the tularemic ulcer begins soon after treatment with streptomycin is started and is usually complete within one week. In some cases there was a secondary infection which responded to moist dressings. In most of the cases the affected regional lymph nodes healed slowly, but not infrequently they became fluctuant, and if not incised would, many times, remain abnormal for several weeks, rupturing spontaneously. It was found that surgical drainage reduced the healing interval considerably.

SUMMARY

An analysis of 54 cases of tularemia is presented. The incidence of the disease appears to be increasing in this Ozark region. The majority of the cases occurred during the summer months. In 63 per cent of the cases the source of the infection was tick bites.

The incubation period varied from one to twelve days but averaged one to three days. The symptoms in these cases did not vary significantly from the usual description. One or more cases of each type of the disease were seen, with 70 per cent representing the ulceroglandular form. Seventeen per cent of the patients had pneumonic involvement.

The definite diagnosis of tularemia depends on a positive agglutination reaction in either a high or a rising titer. The interval from onset of symptoms to the development of specific agglutinations ranged widely from eight to thirty-three days, with an average of fourteen days.

Twenty-seven cases in which treatment was with streptomycin were compared with an equal number of cases in which treatment was only symptomatic. An average morbidity of fourteen days and a mortality of 14 per cent were noted in the latter group, in contrast with an average morbidity of one day and no mortality in the cases in which treatment was with streptomycin. Previous to the use of streptomycin 50 per cent of the cases of pneumonic disease were fatal.

The indications for the use of streptomycin do not necessarily include a positive agglutination reaction, because the course of the illness may be far advanced before this test elicits a positive reaction. Thus, in this region, the ulceroglandular syndrome with fever is in itself an indication for immediate specific therapy.

The most common dosage schedule was 1 to 1.25 Gm. of streptomycin daily in divided doses every three or four hours, the total usually amounting to 5 to 7 Gm. It was noted that the average case of pneumonic disease required little, if any, more streptomycin than the cases of ulceroglandular disease.

PERMANENT WAVE PROCESS

Clinical Report With Special Reference to the Effect of Ammonium Thioglycolate on the Skin

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It has been estimated by manufacturers of chemicals employed in permanent hair-waving procedures that some "permanent wave process will be carried out at least fifty million times during the current year."[1] There is then, an apparent need for a critical study of the irritant properties of the chemicals so casually applied to the hair and scalp.

Permanent hair-waving methods are classified by Reed, Humoller and DenBeste[1] into two main categories. Briefly, in the "hot method, the hair is treated with an alkaline sulphide preparation and wrapped around a rod of small diameter. Heat is then applied to change the configuration of the hair from a straight to a curled state." In the "cold method, the hair is also wrapped around a rod of suitable diameter either prior to or after treatment with an alkaline reducing agent—usually thioglycolate. In contra-distinction to the hot permanent waving method, no external heat is applied. After satisfactory undulation of the hair is obtained, the wave is fixed by application of a suitable oxidizing agent."[1]

The mechanism of the latter waving reaction and the supposed changes in the chemistry and structure of the hair under these circumstances provide an interesting example of the application of biochemistry in dermatology. However, clinical interest at present derives chiefly from the possibilities for injury to the hair and the scalp which may accompany the procedures of cold waving. Many clinical and experimental reports have appeared in the literature, and some of these

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[1] Reed, R. E.; Humoller, F. L., and DenBeste, M.: Permanent Waving of Human Hair: The Cold Process, read before the meeting of the American Association for the Advancement of Science (December) 1946.

have been confusing and contradictory. This situation illustrates once more a principle that all too frequently is neglected, that the potentialities for harm possessed by commercial products should be fully investigated before they are distributed and used. Rattner[2] has indicated that there have been only about twenty-two complaints among 50,000 treatments.

Cotter[3] reported 5 cases of dermatitis associated with the application of cold waving processes. Patch tests were carried out on 2 of these persons, but the details of the concentrations of the materials employed were not given. McCord[4] has reported that certain commercial preparations of ammonium thioglycolate caused injury to the skin of 7.4 per cent of persons subjected to contact therewith for twenty-four hours, but no injury resulted from similar contact for four, six or nine hour periods. McCord[4] is also authority for the statement that no primary irritation of the skin occurs as the result of contact with thioglycolic acid or its alkaline derivatives in concentration (in water) below 8 per cent by volume. Moreover, McCord[5] found no evidence of sensitivity or allergic response of the skin to carefully prepared ammonium thioglycolate. According to Cappel and Cappel,[6] the incidence of injurious effects, in the wake of thirty million or more cold waves that have been given within three years, has been under 0.1 per cent. These investigators applied cotton saturated with the material to the skin and covered it with a watch glass, the edges of which were sealed on the skin with collodion. Goodman[7] claimed that the patch test is not reliable for the detection of dermatitis from cold wave preparations, since the factor responsible for the irritation is usually a combination of thioglycolic acid, the softener, the fixative or the keratin, rather than the thioglycolic acid itself. Howell[8] reported a case of eczematous contact dermatitis following the application of a cold waving process. No positive reaction was observed when waving solution, neutralizing liquid and shampoo were employed individually in patch tests. He also carried out patch tests, with negative results, on 3 normal persons with 1 per cent concentrations of the shampoo, preliminary lotion, waving compound and neutralizing solution, and mixtures of these chemicals. When the patient was tested with the preliminary lotion, one month after the dermatitis subsided, a positive reaction was elicited in twenty-four hours. This preliminary lotion was a special type of detergent of unknown composition, used to cleanse the hair. McGill and Rag[9] wrote that 11 cases had been reported to the Division of Industrial Hygiene in Oregon and that none of the diagnoses had been confirmed. One patient had failed to respond positively to a patch test with the cold waving solution diluted with 100 parts of water. In a second case reported by these authors patch tests were not made.

In addition to the possibility of cutaneous irritation and sensitization from thioglycolate, there are, of course, some definite effects on the hair. The changes include drying, splitting, changes in tensile strength, elasticity and, of course, cellular state. Clinically, these changes may be manifested by changes in the color of the hair; for example some darkening of white hair; and by splitting, cracking and desiccation of the hair. It does not matter how correct or "mild" the permanent waving process may be, there still are a number of changes in the hair, which, for this reason, is not in a normal state after the cold waving process.

Systemic toxicity from cold waving must also be considered. Cotter[3] has suggested this in his report, but he gives no evidence of its occurrence. Some detailed observations have been made on animals in this regard. According to Whitesell, Alvarez and Draize,[10] salts of thioglycolic acid may be absorbed percutaneously by animals with resultant systemic poisoning, "but the dose level is higher and the manner of application more vigorous than those specified in directions accompanying waving solutions intended for use by beauticians and in home application." There were minor fluctuations in the hemoglobin content of the blood and in the volume of erythrocytes of animals following dosages as small as 4 cc. per kilogram per day. In general, however, the conclusion arrived at from these studies was that ammonium thioglycolate hair-waving solutions are "safe" for use if the usual directions are carefully followed. Rostenberg,[11] who has had considerable experience with the analysis of reports of irritations from consumer products, expressed the belief that many prefer the cold wave to the discomforts incident to their use.

Since the cold wave process as practiced in the beauty parlor is an elaborate ritual, which involves the application of many things in addition to the thioglycolate solution, the correct analysis of any irritation presumed to have followed use of the cold waving process demands multiple cutaneous testing with all the ingredients used in the various steps of the cold waving process. These should include: (1) the preliminary shampoo material, (2) the preliminary cleansing lotion, (3) the cold wave material, (4) the oxidizing agent, (5) the post-treatment shampoo material, (6) the wave setting material, perfumes, etc.

EXPERIMENTAL OBSERVATIONS

Preliminary observations have been made to determine the effect of the application of undiluted and diluted ammonium thioglycolate on the normal scalp and the normal skin of women. For this purpose 149 women patients with apparently normal skin and scalp were employed as subjects. Thirty of these were Negro. Small quantities of the undiluted ammonium thioglycolate were sealed by means of paraffin into a series of small bottles for use as required. In an effort to approximate the conditions under which the cold waving procedure is carried out, 1 drop of the undiluted ammonium thioglycolate solution was applied by means of a glass rod and rubbed into the occiput, while another drop was rubbed into the clear skin of the forehead just below the hair line, this procedure being designated as a "streaking technic." On the same occasion, in many instances, a conventional contact patch test of the undiluted material was made, the observations on these being concluded in forty-eight hours.

The results of the unstandardized "streaking tests" were disappointing, even though an occasional positive reaction was obtained. There was no correlation between such reactions and the positive reactions to the patch tests. Conversely, the subjects with the positive reactions to patch tests gave negative reactions to "streaking tests." It is believed however, that if the "streaking test" could be standardized as regards pressure, temperature and the duration of actual contact with the skin, information concerning the applicability of the test of the properties of chemical substances could be obtained.

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[2] Rattner, H.: Personal communication to the authors.

[3] Cotter, L. H.: Thioglycolic Acid Poisoning in Connection with the "Cold Wave" Process, J. A. M. A. **131**: 593 (June 15) 1946. Effects of the Cold Wave Process, editorial, ibid. **131**: 746 (June 29) 1946.

[4] McCord, C. P.: Toxicity of Thioglycolic Acid Using Cold Wave Permanent Process, J. A. M. A. **131**: 776 (June 29) 1946.

[5] McCord, C. P.: The Physiologic Properties of Thioglycolic Acid, Indust. Med. **15**: 669 (Dec.) 1946.

[6] Cappel, N. A., and Cappel, L. R.: Cold Permanent Wave Solutions as an Irritant, Am. Perfumer & Essential Oil Rev. **48**: 43 (Aug.) 1946.

[7] Goodman, H.: Dermatitis from Cold Wave Permanent Chemicals, Urol. & Cutan. Rev. **49**: 117 (Feb.) 1945.

[8] Howell, J. B.: Contact Dermatitis from Cold Permanent Waving, Arch. Dermat. & Syph. **49**: 432 (June) 1944.

[9] McGill, C. M., and Rag, L.: Cold Wave Dermatitis: Report of Two Cases, Indust. Med. **16**: 238 (May) 1947

[10] Whitesell, M. F.; Alvarez, E., and Draize, J. H.: The Percutaneous Toxicity of Thioglycolates, Federation Proc. **6**: 383 (March) 1947.

[11] Rostenberg, A., Jr.: Personal communication to the authors.

TABLE 1.—*The Results of the Application of Ammonium Thioglycolate Solution to the Skin of Human Subjects by a "Streaking Technic"*

Material Tested	Number of Subjects	Reactions				
		Negative	Positive			
			+	++	+++	++++
Undiluted ammonium thioglycolate, scalp	83	81	0	2	0	0
Undiluted ammonium thioglycolate, forehead	83	83	0	0	0	0

The eleven reactions obtained in routine forty-eight hour patch tests carried out on 83 patients suggest that this compound is a mild irritant for the skin when applied in undiluted form over a prolonged period of time.

Twelve beauty parlor operators with contact dermatitis of the hands were examined. In general, the majority of these cases showed the irritant type of contact dermatitis, with solitary, thickened, fissured and occasionally vesicular, oozing patches. It is important, that in no case was a positive reaction produced to a patch test with the cold wave material which the beauty parlor operators furnished. Tests with the shampoos gave positive reactions with much greater frequency. This observation substantiates a clinical impression that the majority of cases of dermatitis related to cold waving materials are characterized by direct irritation or even nonallergic eczematous dermatitis (Baer) and not sensitization. In view of the prolonged periods of contact associated with friction which the beauty parlor operator has with these solutions, it is strange that not more of these reactions are produced. In cold waving done in the home, where 1 person does the hair of a number of subjects, the hands of the operator may also become irritated.

TABLE 2.—*Results of Application of Ammonium Thioglycolate Alone and After Admixture with Soap Solution to Scalp and Skin of Human Subjects by a "Streaking Technic"*

Material Tested	Number of Subjects	Reactions				
		Negative	Positive			
			+	++	+++	++++
Undiluted ammonium thioglycolate, scalp	63	61	2	0	0	0
1% soap solution, scalp	63	62	1	0	0	0
Undiluted ammonium thioglycolate plus 1% soap solution, scalp	63	62	1	0	0	0
Undiluted ammonium thioglycolate, forehead	63	63	0	0	0	0
1% soap solution, forehead	63	63	0	0	0	0
Undiluted ammonium thioglycolate plus 1% soap solution, forehead	63	63	0	0	0	0

Five patients with dermatitis presumed to have followed cold waving of the hair were studied. In 1 instance, the cutaneous reaction followed the use of a "hot" waving solution. In no case was an extensive eczematous type of reaction produced. The clinical forms of dermatitis which may follow the cold waving process may be divided roughly into three classes: (1) a pruritic, discreet, papulopustular and vesicular eruption scattered over the back of the scalp, about the ears and about the shoulders; (2) the solitary deep burn type of lesion (more common in "hot" waving?). If this is deep enough alopecia may result; (3) rarely, an eczematous contact dermatitis of the hair line and occasionally of the scalp.

No effort was made to gather the details of the performance of the operators of the cold waving processes carried out on these patients, with regard to carelessness, expertness, precautionary measures and the period of contact permitted. The shampoo was implicated most frequently by the patch tests, and in some instances no positive reactions to any of the substances were obtained. There is definite need for a critical study of the irritation of the skin of the beauty parlor operators who work with cold waving solutions, and also of patrons of beauty parlors who complain of various degrees of cutaneous irritation following the use of cold waving solutions. It is our impression from clinical observation that irritation of the skin, while uncommon, is yet more frequent in its occurrence in this relationship than is eczematous dermatitis. Considering the strength of the solutions employed in cold waving process, it is indeed surprising that more cases of cutaneous irritation do not result.

TABLE 3.—*Results of the Application of Ammonium Thioglycolate to the Skin of Human Subjects by the Patch Test Technic*

Material tested	Number of Subjects	Reactions				
		Negative	Positive			
			+	++	+++	++++
Undiluted ammonium thioglycolate	83	72	8	2	1	0

COMMENT

From preliminary observations, then, it is evident that the technic of cold waving can produce local irritation of the skin. Some persons appear to be more susceptible to this irritation than others. Some factors which may be considered are the differences in the materials employed and the technics of their use. These factors have not been determined in a critical fashion. Rarely, eczematous hypersensitivity may be produced in the cold waving process. It seems that this eczematous hypersensitivity is more frequently due to materials other than the cold waving solutions themselves and, as Peck and Schwartz[12] mentioned, especially the perfumes, gums and resins. Preliminary use of thioglycolate in the foregoing series of cutaneous tests has demonstrated that it is, potentially, a mild irritant for the skin.

These few facts suggest that it may be possible to develop some prophylaxis of irritation from thioglycolate. When the material is used with considerable caution, there may yet be some dermatitis about the neck from the seepage of ammonium thioglycolate between towels and the surface of the neck and from the rubbing of this into the skin. Similarly, the dermatitis of the scalp may be due to unduly prolonged contact of the ammonium thioglycolate with the scalp, to inadequate removal of the material after its effect has been achieved or to its incomplete neutralization at the proper time.

However, the chief difficulty in the use of ammonium thioglycolate in relation to cutaneous damage lies in its effects on beauty parlor operators rather than on the patrons. The specific background of such irritation can rarely be proved by the diagnostic procedures available at present, since the lesions are nonspecific, being those of primary irritation. From a practical standpoint, it is not possible to protect the skin of beauty parlor operators during their performance of cold waving technic, since the technic is an open and wet one, and the hands, especially the left, are dampened continuously by repeated applications of the solution. In addition, the frequent use of detergents associated with the process would appear to be a contributory factor. Beauty parlor operators refuse to use gloves, and the process at present does not appear to be amenable to control from the aspect of complete avoidance of contact on the part of the operators.

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[12] Schwartz, L. B., and Peck, S. M.: Cosmetics and Dermatitis, New York, Paul B. Hoeber, Inc., 1946, p. 103.

The following recommendations are offered for the purposes of prophylaxis:

1. Attempts to prevent irritation from ammonium thioglycolate: The beauty operator should be instructed emphatically that no matter how rapidly she works and no matter how anxious she is to complete her work no large quantities of the cold waving materials should be allowed to remain on the surface of the skin, and that as far as possible none should be permitted to remain longer than is required to remove it from such skin surfaces as those of the neck and forehead, which are not covered with hair.

2. Ammonium thioglycolate adjacent to a scratch, or to an area which has been rubbed by towels or abraded by other manipulations of curling equipment or other appliances, may also serve to induce an actual dermatitis. Thorough rinsing of the scalp is recommended to prevent this so far as possible.

3. The operator should pay close attention to any complaints of burning and discomfort which the patient exhibits. Areas so involved can be and should be cleansed as completely as possible by mopping up the excess which has accumulated thereon.

4. Following the appearance of actual erythema or redness of the scalp or of the neck, further contact with the permanent waving solution should be avoided, since further contacts will certainly cause an increase in the irritation.

5. Towels and towel rests should be inspected from time to time to see whether any of the cold waving solutions have been allowed to drip or remain on them.

6. During the operation of cold waving, every attempt should be made to limit the use of materials to the least quantities consistent with obtaining the effect and to avoid spillage and undue spread of the materials.

7. The beauty parlor operator should attempt to protect her hands as much as possible during the cold waving operations: (*a*) by attempting to use materials and appliances which do not allow repeated contacts with her hands; (*b*) by avoiding undue dependence on the so-called protective cream; (*c*) by using protective gloves when necessary, especially if the skin of the hands should be irritated or abraded, and (*d*) by avoiding all contact with cold waving preparations or strong detergents for a "significant" period of time when the skin of the hand is irritated or thickened.

When actual dermatitis is found to have occurred in close or plausible time relationship to contact with cold waving materials, an effort should be made to classify the type of dermatitis. This is to say, one must decide whether the dermatitis is a discreet, localized irritation of the scalp and skin, what the degree of this irritation is and whether or not it is an eczematous type of contact hypersensitivity. Next, the patient should be tested carefully and adequately with all the materials that have been used in the entire technic of the cold waving process. As the result of the collection of such data on a sufficient number of cases, the true picture can be found and proper corrective measures outlined.

SUMMARY AND CONCLUSION

Cold waving solutions are used extensively, and the frequency of reactions is reported to be less than 0.1 per cent. The reactions may be characterized either as varying degrees of primary irritation or, more rarely, as instances of eczematous hypersensitivity. The reactions on the hands of the beauty parlor operators are more frequent by far, more severe and more extensive than those which occur among patrons of the beauty parlors.

In a preliminary group of observations on 149 women, ammonium thioglycolyate was found to be a mild irritant to the skin. Attempts were made to simulate actual practice by the use of "streaking tests" on the scalp and the forehead. There were a few reactions to this procedure, but these effects were not correlated with the response to a conventional forty-eight hour patch test.

Recommendations have been made for the avoidance of procedures on the part of the operators which would appear to increase the hazard of cutaneous irritation to patrons.

Little hope is held for the protection of the hands of the beauty parlor operators under the conditions associated with present procedures, unless they will consent to wear some sort of protective gloves.

VARIOUS PHASES OF THE USE OF STREPTOMYCIN IN TUBERCULOSIS

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Streptomycin, a recently developed antibiotic, figures prominently at the present time in the chemotherapy of tuberculosis in man. During the twentieth century the development of chemotherapy in tuberculosis in man has been pursued by two apparently divergent sets of investigators: first, those who believed in conservative progress based on thorough fundamental scientific study of possible therapeutic agents, translating elucidating laboratory and animal findings into human values; and second, those who were content to quickly transpose apparently encouraging in vitro and in vivo animal findings into human significance. The second group, of course, took encouragement from findings in diseases where only human studies were possible and from the fact that animal disease did not duplicate sufficiently that noted in man and therefore did not permit the latter to be interpreted in the light of such scientific knowledge. Yet it is odd that the second group frequently justify their failures, both in interpreting human results and in supporting their contentions, on the basis of the results of animal tests.

There are definite features of streptomycin which preclude an early and ready evaluation of its effects in human tuberculosis, a disease from which man recovers with only the aid of nature and good medical sense to live his allotted three score plus ten. The investigations to be reported here were undertaken with the sole purpose of building scientific information that would enable us to determine whether streptomycin and similar chemotherapeutic agents might be beneficial in tuberculosis in man and, further, to explain so far as possible its mode of action in man. Much has been written to date on streptomycin, and that part published previously to the middle of 1946 has been reviewed by us.[1]

It is claimed that "streptomycin exerts a suppressive effect on the progress of tuberculous infection in man.

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This study was aided by the Jacques Labarrere fund for tuberculosis research.

[1] Corper, H. J., and Cohn, M. L.: The Tubercle Bacilli and Fundamental Chemotherapeutic and Antibiotic Action, Yale J. Biol. & Med. 19: 1-22, 1946.

Limitations to the intensity of the antibacterial activity and possibly to its duration have been demonstrated."[2] In a report of the results of a study of 100 treated patients it is noted that "Streptomycin is an antibacterial agent which possesses the unique ability to inhibit the growth of Mycobacterium tuberculosis in vivo, both experimentally and clinically. . . . In many instances streptomycin appears to suppress tuberculosis rather than to eradicate it, being apparently tuberculostatic rather than completely bactericidal in the concentrations which can be obtained in the tissues. . . . consistently encouraging results attendant on its use in a series of 100 cases in the past two years" is claimed[3] It is admitted, however, that a critical evaluation of the human study leaves much to be desired so far as definite results are concerned and that the standard accepted treatments of the past should not be forsaken. Aside from such general reports, there are individual case reports indicating a definite curative effect of streptomycin in human tuberculosis. One such, appearing as recently as March 1947 and reporting the successful treatment of 4 children (7 months to 3 years of age), who were given 1 Gm. daily for only one month, stated that this resulted "in defervescence in all 4, improvement in their general conditon and a regression of the appearance of the pulmonary lesions in the roentgenograms."[4] Such uncontrolled observations can only lead to a misconception of the actual value of streptomycin, if one exists, in man and the indiscriminate abuse of the treatment, without benefit.

In a previous publication we noted[1] that "streptomycin properly administered and in proper dosage is capable of retarding the development or growth of human tubercle bacilli, both in vitro and in vivo" in restricted laboratory experiments. "The concentration of streptomycin required to retard the growth of tubercle bacilli in vitro in good nutrient medium can only be attained in vivo for a brief period by any route of administration or amount of streptomycin that can be used even with the present high assay unit preparations. . . . There is no evidence available at present to indicate that streptomycin enters the important organs in appreciable amount for any significant time although it is present in the blood, or that it accumulates in these organs," or "that tubercle bacilli adsorb or absorb streptomycin or that it accumulates in these bacilli in vitro or in vivo."

Although their number is difficult to determine accurately, only few other reports on the organic distribution of streptomycin have appeared. Adcock and Hettig[5] studied the absorption, distribution and excretion of streptomycin in man. It was not absorbed appreciably when given orally or by inhalation, and a high concentration appeared in the feces after oral use. After parenteral administration, it was demonstrated in the blood serum in amounts roughly proportional to the dose, and appeared in the bile, the spinal fluid of subjects with meningitis, and in the pleural fluid in effusions. A postmortem study of its distribution, after it had been given by continuous subcutaneous infusion in excess of forty-eight hours extending to the time of death, revealed that it was present in high concentration in the kidney. Smaller amounts were found in the lung and in the heart muscle, while both the brain and the liver were virtually free from the substance. From 41 to 86 per cent of streptomycin was excreted in the urine within twelve hours after parenteral administration. More recently Nelson, Forgacs and Kucera[6] found no streptomycin in the organs of the mouse one hour after injecting 1,000 units. Using electronegatively charged trypan blue for anchoring the streptomycin, they were able to note it in determinable amounts in the blood, the liver and the spleen after twenty-five hours.

An earlier report by Zintel and co-workers[7] noted that after parenteral administration most of the streptomycin (29 to 89 per cent) is recovered from the urine in twenty-four hours, and little or no more is recovered after this. Streptomycin was found in most of the body fluids—blood, ascitic fluid, pleural fluid, aqueous humor, vitreous humor, amniotic fluid and bile. Small amounts were found in the spinal fluid, increasing in the presence of meningitis. Donovick and Rake,[8] using the mouse, recovered 61 per cent of the streptomycin from the urine with large doses and 45 per cent with smaller doses. Four hours after injection, 100 per cent of the drug was found.

That tubercle bacilli may acquire resistance to streptomycin, another feature of uncertain significance, is recorded. Its practical implication in regard to man is still unknown.[9] Streptomycin-resistant human type tubercle bacilli were found to be as virulent for white mice as streptomycin-sensitive strains. Infection produced in mice with streptomycin-resistant cultures were not suppressed by streptomycin treatment. Middlebrook and Yegian[10] noted that in all mycobacteria thus far tested resistance to streptomycin developed in vitro at a rapid rate and that it persisted for at least four months and appeared not to be paralleled by any diminution of virulence for guinea pigs.

THE IN VITRO EFFECTS OF STREPTOMYCIN

In earlier studies we showed that streptomycin was perceptibly less effective in retarding the growth of human tubercle bacilli on a good nutrient medium (egg yolk) than on a poor nutrient medium (broth agar) and that the amount of planting played a significant role in its effect on the bacilli. In a further study with liquid mediums, usually graded as poor nutrients for tubercle bacilli, rather interesting findings were recorded, which emphasizes the necessity of accurately defining the conditions under which retardation of growth occurs in tubercle bacilli or acid-fast bacilli influenced by streptomycin. In a preliminary titration test with the acid-fast bacillus "Day," it was found that while this organism would not grow in a dilution of less than 0.01 mg. per cubic centimeter of fine suspension planted in plain broth, the addition of 1 per cent dextrose to the medium altered this. In Wong Weinzirl's medium, a synthetic nonprotein medium without dextrose, growth occurred in 0.001 mg. per cubic centimeter plantings; and after the addition of 1 per cent dextrose, growth occurred in the 0.0001 mg. plantings, indicating the better growth-supporting nutrient qualities of the latter medium as compared with the former for acid-fast saprophytes as well as for tubercle bacilli. With the information at hand, the effect of streptomycin on standard plantings of acid-fast and tubercle bacilli was tested on a broth-unit basis with the results recorded in table 1. In addition, this table shows the effect of the addition of a non-nutrient, nontoxic, apparently inert soluble colloidal cellulose preparation.

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[2] Hinshaw, H. C.; Feldman, W. H., and Pfuetze, K. H.: Streptomycin in the Treatment of Clinical Tuberculosis, Am. Rev. Tuberc. **54:** 191-201, 1946.

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[7] Zintel, H. A.; Flippin, H. F.; Nichols, A. C.; Wiley, M. M., and Rhoads, J. E.: Studies on Streptomycin in Man: I. Absorption, Distribution, Excretion and Toxicity, Am. J. M. Sc. **210:** 421-430, 1945.

[8] Donovick, R., and Rake, G.: Studies on Some Biological Aspects of Dihydrostreptomycin, J. Bact. **53:** 205-211, 1947.

[9] Youmans, G. P., and Willeston, E. H.: Effect of Streptomycin on Experimental Infections Produced in Mice with Streptomycin Resistant Strains o[illegible] ominis, Proc. Soc. Exper. Biol. & Med. **63:** 131-[illegible] G.; Feldman, W. H., and Hinshaw, H. C.: [illegible] of Tubercle Bacilli to Streptomycin During P[illegible] igs, ibid. **64:** 6-7, 1947.

[10] Middlebrook, G., and Yegian, D.: Certain Effects of Streptomycin on Mycobacteria in Vitro, Am. Rev. Tuberc. **54:** 553-558, 1946.

Table 1.—*A Comparison of the Growths of Acid-Fast Saprophyte "Day" on Plain Broth and on Wong's Medium and in Wong's Cellulose Gum**

Streptomycin Broth "Day" Units per Cc. of Medium	Plain Broth	Broth with 5% Glycerin	Broth with 1% Dextrose	Wong's Medium with 5% Glycerin, 1% Dextrose	Wong's Cellulose Gum with 5% Glycerin, 1% Dextrose
200	0	0	0	0	0
20	0	0	0	0	+
10	0	0	0	0	+++
5	0	0	0	+	+++
2	0	0	+	++	+++
1	0	++	++	+++	+++
0.8	++	++	++	+++	+++
0.5	++	++	++	+++	+++

* The tubes were all planted with 1 mg. per cubic centimeter of the acid-fast "Day" bacilli, and readings were made after two days at 37 C. Essentially the same results were noted with tubercle bacilli in similar tests.

The results recorded in table 1 indicate that the amount of streptomycin required to retard the growth of acid-fast bacilli can vary in liquid mediums from 1 unit for plain broth to 5 units for broth with dextrose, to 10 units for a synthetic nonprotein medium (Wong's) containing glycerin and dextrose, to over 100 units for the latter containing an inert non-nutrient soluble colloidal cellulose substance, in spite of no apparent change in the hydrogen ion concentration of the medium or loss of activity of the contained streptomycin as tested at the end of the experiment on a broth-unit basis.

Table 2.—*The Growths of Various Strains of Tubercle Bacilli and an Acid-Fast Saprophyte on a Synthetic Nonprotein Glycerin Agar Medium (Wong) Without Dextrose* Containing Different Concentrations of Streptomycin*

Strain of Bacilli Used	Growth with Given Concentration of Streptomycin (Broth "Day" Units per Cubic Centimeter) in Wong's Glycerin Agar Medium (Without Dextrose)															
	0 Units		1 Unit		10 Units		50 Units			100 Units			1,000 Units			10,000 Units
	+S†	+L	0S	+L	0S	+L	0S	+L‡	+T	0S	+L	+T	0S	+L	+T	+T
Avirulent human tubercle bacilli																
Virulent human tubercle bacilli	+S	+L	+S	+L	0S	+L	0S	+L	+T	0S	+L	+T	0S	0L	+T	0T
No. 4008 §	+S	+L	+S	+L	0S	+L	0S	+L	+T	0S	+L	+T	0S	+L	+T	0T
H 160 §	+S	+L	0S	+L	0S	+L	0S	+L	+T	0S	+L	+T	0S	+L	+T	+T
Gluckson	+S	+L	0S	+L	0S	+L	0S	+L	+T	0S	+L	+T	0S	0L	+T	0T
H 37/rv §	+S	+L	+S	+L	+S	+L	+S	+L	+T	0S	+L	+T	0S	+L	+T	+T
Virulent bovine tubercle bacilli	+S	+L	+S	+L	+S	+L	+S	+L	+T	0S	+L	+T	0S	+L	+T	+T
Acid-fast saprophyte "Day"																

* The addition of 1 per cent dextrose promoted growth with fine suspension planting up to concentrations of 10 to 50 units of streptomycin per cubic centimeter.

† S indicates 1 mg. per cubic centimeter fine suspension planting; L indicates planting of divided particles of bacillary mass directly from another culture; 0 means absence of growth; + means growth.

‡ The growth obtained from subcultures grown on 50 units streptomycin per cubic centimeter were transferred to streptomycin-containing mediums, and the direct results from these first transfers are indicated as 0T or +T.

§ No. 4068, H 160 and H 37/rv grew less vigorously on this medium than the other strains, although they grew equally well on good nutrient mediums.

The latitude of the arbitrary retardation produced in vitro by streptomycin is again evident if the tests are performed on a poor nutrient medium, such as glycerin agar, which requires relatively heavy plantings of the bacilli if evident growth is to be obtained. The growth on such a streptomycin-containing medium, the Wong glycerin agar medium, and the effect of the development of resistance to the streptomycin are presented in table 2.

It is noted from the results recorded in table 2 that tubercle bacilli are capable of growing directly on 10 to 1,000 units of streptomycin per cubic centimeter contained in a relatively poor nutrient solid medium, such as Wong's glycerin agar without dextrose, and that a first transplant from cultures containing 50 units of streptomycin invariably grew on 1,000 to over 10,000 units of streptomycin per cubic centimeter. It must be remembered that there is a striking difference between the growth of tubercle bacilli on nutrient liquid mediums and that on the same constituents incorporated in agar mediums, as pointed out by us years ago and verified recently by Dubos. The agar mediums require much heavier plants for successful growth. Another feature complicating interpretation and measurement of in vitro streptomycin retardations of tubercle bacilli and acid-fast bacilli is the fact that the micro-organisms will not grow on serum, plasma or blood directly unless these have been diluted with a nutrient medium or subjected to some other denaturing influence, such as heating or prior acid treatment and neutralization.[11] On the other hand, they will grow on organs, but the streptomycin unitage is disturbed. These findings with tissues and body fluids are presented in table 3.

The results recorded in table 3 indicate that at least 5 to 10 units of streptomycin is required to inhibit growth of acid-fast bacilli in ground organs (lung, liver, spleen and kidney), and, in spite of the fact that citrated plasma and blood sediment (red corpuscles) completely retard the growth of acid-fast bacilli (and tubercle bacilli), from 10 to 100 units of streptomycin is required to produce a retardant effect when these body fluids are diluted with Wong's liquid medium. The natural retardant action of the plasma is destroyed by heating for thirty minutes above 50 C.

Previously it was demonstrated that streptomycin can be found in the blood after injection but not in the heated organs. In an attempt to determine whether streptomycin could be demonstrated by unit assay in the fresh organs of exsanguinated guinea pigs, several animals weighing about 700 Gm. were given 125,000 units of streptomycin. One hour after injection of the streptomycin the organs were removed aseptically and used undiluted and diluted up to 1:5 with solution of sodium chloride for implantation of acid-fast saprophyte "Day," which was prepared in a fine suspension containing 1 mg. per cubic centimeter. Growth occurred on all the organs as such—lung, liver, spleen and kidney—and in the saline dilutions, suggesting an absence of demonstrable retarding concentrations of streptomycin in these organs following both intravenous and subcutaneous injection. Chemical assay methods, though tried by us, have proved completely unreliable for determining small amounts of streptomycin in the tissues.

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[11] Corper, H. J., and Vidal, C. B.: The Inhibitory Effect of Normal Blood on the Growth of Tubercle Bacilli at Incubator Temperature, Am. Rev. Tuberc. 28:878-883, 1933.

THE EFFECT OF STREPTOMYCIN ON TUBERCULOSIS

Any consideration of the effect exerted by streptomycin on tuberculosis or on the tubercle bacillus in vivo resolves itself into the solution of three phases of the problem: whether streptomycin can kill tubercle bacilli in the host, whether it can completely retard the development of either the tubercle bacilli or the tuberculosis and, if not, whether it can partially retard them. The resolution of tuberculosis within a reasonable time is involved in the foregoing three phases, as is evident from any morphologic study with either dead or avirulent tubercle bacilli, and requires separate consideration.

TABLE 3.—*The Growth of Acid-Fast Bacilli on Tissues and Body Fluids* * *and the Effect of Streptomycin*

Body Fluid or Tissue	Growth with Given Concentration of Streptomycin 0	1	5	10	100†
Citrated plasma					
[illegible]	0	0	0	0	0
[illegible]	+	+	+	+	0
[illegible]	+	+	+	+	0
Blood sediment (RBC)					
Full strength	0	0	0	0	0
1:1 (Wong's medium)	+	+	+	+	0
1:10 (Wong's medium)	+	+	+	+	0
Lung					
1:1 solution of sodium chloride	+	+	+	0	0
Liver					
1:1 solution of sodium chloride	+	+	0	0	0
Spleen					
1:1 solution of sodium chloride	+	+	0	0	0
Kidney					
1:1 solution of sodium chloride	+	+	+	0	0

* A fine suspension containing 1 mg. per cubic centimeter of a growth of acid-fast—saprophyte "Day" as test organism was planted in the various mediums.

† The concentration is given as units per cubic centimeter.

In order to note the action of streptomycin on virulent tubercle bacilli in vivo, animals were infected and treated at various periods for prolonged intervals, after which they were examined for viable tubercle bacilli and tuberculosis. In table 4 the condensed results of extensive studies of the various phases of this problem are presented.

It is noted from the data recorded in table 4 that prolonged streptomycin treatment retarded the tuberculosis but did not prevent death of the guinea pigs from tuberculosis. Positive cultures of virulent tubercle bacilli were obtained from all the important organs, regardless of whether the animal had received as little as 0.1 mg. of bacilli intravenously and had lived under treatment for as long as one hundred and eighty-one days. It was interesting to note also that if treatment was begun only one week after intravenous infection, after which the disease becomes established in the organs, the animal ultimately dies of generalized massive tuberculosis. An interesting feature of this experiment was that some of the guinea pigs taken off treatment after forty days survived almost as long as those treated continuously until death. Without going too far into interpretation, it appears that the streptomycin exerts its initial and potent effect at the time of infection or coincidentally with it, and that the establishment of immunity is a potent factor in the prevention of spread of the disease and delays death of the animal. This is further emphasized when the animal has been infected subcutaneously and treatment initiated with large doses of streptomycin after tuberculosis has become well established in the organs. In this case the streptomycin proves more toxic to these animals, which is evident from the fact that some of the animals succumb acutely with the initiation of treatment. Surviving this, they appear to reveal a retarding effect; but because of the marked variation in the results of infecting groups of such animals subcutaneously, no definite resolution of the disease is demonstrable.

TABLE 4.—*The Effect of Streptomycin Treatment on Guinea Pigs Infected Intravenously with 1 Mg. of Virulent Human Tubercle Bacilli (No. 4008)*

Interval After Infection When Animal Was Examined	Streptomycin Treatment	Results of Culture of Organs: Lung	Liver	Spleen	Kidney	Brain
1 day (animal killed)	Control—no treatment	3*	4	3	4	5
3 weeks (animal died)	Control—no treatment	2	3	3	3	2
77 days (animal died)†	12,000 units daily throughout	2	3	2	2	.
115 days (animal died)	Treatment begun 1 week after infection, 25,000 units daily until death	Massive tuberculous involvement of all important organs				
153 days (animal died)†	12,000 units daily throughout	3	4	3	4	3
181 days (animal killed)‡	12,000 units daily throughout	7	4	3	8	..

*The numeral indicates the number of weeks at the end of which positive cultures were obtained on glycerin-egg yolk medium.

Virulence tests of the strain recovered from these animals disclosed no change of virulence beyond that disclosed on the same strain when it was inoculated into these animals. Both in vitro and in vivo resistance tests were performed. The in vivo treatment experiments with streptomycin revealed an increased resistance to the effect of the streptomycin following passage through the streptomycin-treated animals.

These guinea pigs had been vaccinated with 1 mg. avirulent human tubercle bacilli one month prior to infection and the animal killed at one hundred and eighty-one days was the longest survivor.

In order to determine the effect of streptomycin on the viability of an avirulent strain of tubercle bacilli, which are naturally destroyed in the guinea pig in about one year after the intravenous injection of approximately 1 mg. of a fine suspension of bacilli, young guinea pigs were given intravenous injections of 1 mg.

TABLE 5.—*The Effect of Streptomycin Treatment on the Organic Distribution and the Viability of Avirulent Human Tubercle Bacilli Injected Intravenously*

Interval After Infection when Animal Was Examined *	Streptomycin Treatment	Results of Culture of Organs: Lung	Liver	Spleen	Kidney	Brain	Bone Marrow
1 month	No treatment	3†	3	3	4	0	3
100 days	No treatment	4	4	4	4	0	0
100 days	25,000 units daily throughout	5	4	4	4	5	6

* These animals weighed about 100 Gm. when given 1 mg. of viable avirulent human tubercle bacilli intravenously. They showed no apparent detrimental effect on their growth as compared with normal and streptomycin-treated controls.

† The numeral indicates the number of weeks that elapsed before a positive culture for tubercle bacilli resulted.

of an actively growing young culture of avirulent human tubercle bacilli, and some were treated with streptomycin while others were not treated. The organs were cultured, and the results are recorded in table 5.

The findings recorded in table 5 indicate definitely that intensive streptomycin treatment begun at the time of injection of viable avirulent human tubercle bacilli and continued for one hundred days exerts no appreciable effect on the viability of these avirulent tubercle bacilli in the various organs of the guinea pig even though the bacilli are present there in only relatively small numbers and naturally tend to be destroyed in these organs.

AN ATTEMPT TO DETERMINE THE MECHANISM BY WHICH TUBERCULOSIS IS RETARDED AFTER INJECTION OF STREPTOMYCIN

From all that has been determined with regard to the mechanism of the action of streptomycin in tuberculosis, it would appear that the general assumption is that it acts in the human being as it does in the test tube in vitro—as a bacteriostatic agent that retards the development of the tubercle bacilli or of tuberculosis or of both in the body. However, if it acts thus alone, there are in this explanation a number of voids which require further elucidation. It has not been demonstrated authentically that the streptomycin reaches the tubercle bacillus or the tubercle in active concentration or that it actually responds to all the requirements of true chemotherapy, since it should display either cidal action in some concentration or at some interval of time, or at least prove to be completely retardant of bacillary development in vivo under suitable in vivo set tests. Streptomycin does not do this. Even its retardant capacities were incomplete and fluctuated under the conditions of our experiment. It is not too much to expect that a drug which exerts such a profound effect on tuberculosis as is recorded clinically for man from some observations should yield equally clearcut abolition in the laboratory animal, in which the conditions of test can be controlled. At least it is well to determine the limitations of any new therapy. With this in mind, a few variations of tests have been tried in the hope of gaining a better insight into the action of streptomycin and, by comparison, elaborating on its chemotherapeutic action. We have been unable to prevent a lethal outcome of tuberculosis in animals by the use of streptomycin, although we have been able to delay that issue. Likewise, with regard to the tuberculin test, no effect of streptomycin treatment has been noted on the local intracutaneous tuberculin reaction, which indicates the presence of tuberculoallergic hypersensitiveness, either in immune or in nonimmune, infected guinea pigs. Some of the animals were immunized with 1 mg. of avirulent human tubercle bacilli, injected subcutaneously, and some were not, and all were infected with a virulent strain of human tubercle bacilli one to two months later and then treated continuously with 25,000 units of streptomycin subcutaneously daily throughout infection. The tuberculin tests were regularly recorded as showing 2 to 4 plus reactions to specific amounts of pure tuberculin, becoming more accentuated as time of infection and treatment increased.

In view of the known facts regarding streptomycin, its preparation, chemical structure and excretion, as well as its in vitro action as a retardant readily removed from the bacilli, it appeared advisable to study the occurrence of a delayed action in the animal and the possibility of the occurrence of some indirect effect on tuberculosis. Such studies have disclosed that even though streptomycin appears to leave the blood fairly rapidly after injection and cannot be discerned in the organs or in tuberculous tissues, guinea pigs treated for eighty-two to ninety-one days with 25,000 units of streptomycin daily and then infected intravenously with 1 mg. of virulent human tubercle bacilli in fine suspension one day after discontinuance of treatment, when streptomycin is not determinable in the blood, showed an increase of twenty-nine days in average duration of life as compared with the untreated controls, whose average was twenty-two days.

In another set of experiments in which treatment was instituted at the time of intravenous injection of 1 mg. of virulent human tubercle bacilli in fine suspension, a single subcutaneous injection of 25,000 units of streptomycin being given daily, a definite retardation of the tuberculosis occurred, comparable to that obtained by spacing injections so that four to six were made daily, totaling the same number of units. In the light of the data reported concerning excretion it appears that such an effect of a single daily injection of streptomycin could not be attributed entirely to the retardant effect of the drug on the bacilli. If again one is permitted to compare in vitro action, which obviously must be carefully interpreted, it has been found that growth of tubercle bacilli on liquid or good nutrient solid mediums is dependent on the amount of daily incubation at 37 C., so that, compared with controls continuously incubated at 37 C., cultures incubated for two thirds of the day are retarded only slightly, while those incubated only one third of the day, though growing perceptibly as compared with cultures kept continuously at room temperature (25 C.), show a decided retardation of growth as compared with the incubator (37 C.) cultures. According to prevalent observations, streptomycin remains in the blood for from four to twelve hours after a single injection.

Advantage is taken here of some observations made with a synthetic chemical agent of known composition, not an antibiotic. It is obtainable in chemically pure form, and acts as a retardant in vitro but fails completely in vivo in spite of the fact that it has a consistent retardant potency for acid-fast bacilli and tubercle bacilli in liquid nutrient mediums, regardless of composition of the medium, of 0.000,001 per cent for tubercle bacilli, while streptomycin is retardant only to 0.0001 per cent. It also is recoverable from the blood and the urine in amounts active against acid-fast bacilli after injection, but not from tissues except when added in vitro. The complete details concerning this compound will be reported later. When intravenously infected animals are treated intensely every two hours with almost as much of this compound as the daily amount of streptomycin used, one is surprised, considering the greater in vitro potency of this chemical compound as a retardant, to find that it does not retard the tuberculosis in the guinea pigs. On the contrary, not only do the treated animals reveal a generalized disease, surviving only as long as the controls, but the tuberculous spleens present a darker hue and an apparent increase in size over the controls. This is in contrast to the almost normal color of the spleen of the streptomycin-treated animal. To check these observations further, the effect of this compound and that of streptomycin were studied in normal mice and mice given intravenous injections of 5 mg. of heat-killed tubercle bacilli in fine suspension. The purpose was to study the effect of these drugs on the tubercle or the cellular tissue reaction produced by dead bacilli. At the end of two weeks the animals were examined, with the results recorded in table 6.

It is noted from the findings recorded in table 6 that streptomycin significantly retards the splenomegaly produced by heat-killed tubercle bacilli injected intravenously, in fine suspensions, into mice. The pure chemical substance that is retardant for acid-fast and tubercle bacilli, on the other hand, produces splenomegaly, not only in the normal mouse but also in the animal given dead tubercle bacilli intravenously.

Table 6.—*The Effect of Streptomycin Compared with That of a Chemical Retardant on the Splenomegaly Produced in Mice by Dead Tubercle Bacilli*

Type of Animals	Streptomycin Treatment	Splenic Weight *	Chemical Retardant Treatment	Splenic Weight *
Normal control......	....	190 mg.	....	202 mg.
Normal mice treated	20 mg. daily for 2 weeks †	190 mg.	20 mg. daily for 2 weeks	380 mg.
Mice given 5 mg. heat-killed tubercle bacilli intravenously	....	388 mg.	....	438 mg.
Mice given 5 mg. heat-killed tubercle bacilli intravenously and then treated	20 mg. daily for 2 weeks †	224 mg.	20 mg. daily for 2 weeks	678 mg.

* The average weight of the spleens is given.

† One and twenty-five hundredths grams of streptomycin equals 1,000,000 units.

SUMMARY AND CONCLUSIONS

In view of the evidence submitted here, streptomycin cannot be considered a cure for tuberculosis in man at present, since it did not destroy virulent human tubercle bacilli, nor did it completely retard their development in vivo.

Streptomycin apparently did not affect the viability of avirulent human tubercle bacilli in vivo.

In our experimental virulent infection, streptomycin did retard tuberculosis but could not prevent a lethal issue of the infection. From evidence available at present, there is no reason to suspect that streptomycin acts differently in man than in animals. None of the animals treated with streptomycin in our tests escaped the lethal issue after the development of virulent infection.

The intimate mechanism by which streptomycin acts in vivo is not fully understood. However, by way of comparison, a pure synthetic chemical substance which acts efficiently in vitro on the growth of tubercle bacilli and acid-fast bacilli and which, after injection in vivo, is demonstrated in the body fluids and the urine in active form was found not to be a retardant of experimental tuberculosis. The difference in action between the two materials in vivo is exemplified by the different splenic tissue reactions noted.

On the basis of evidence presented here and the unstable in vitro retarding unit value of streptomycin in simple mediums for acid-fast and tubercle bacilli, it appears desirable to obtain more controlled evidence before accepting streptomycin as more than incompletely retardant of tuberculosis in man.

The commercial availability of streptomycin should not interfere with additional controlled scientific investigations based on the knowledge gained through the study of this antibiotic.

ABSTRACT OF DISCUSSION

Dr. Emil Bogen, Los Angeles: Dr. Corper has again reported valuable experiments relating to the bacteriology of tuberculosis and the effect exerted by the tubercle bacillus on experimental animals. Many of the experiments are consistent with those made in our laboratory, which have been reported. In regard to others, we have had marked differences; I must differ particularly in consideration of the clinical interpretation which has been made. Streptomycin is a retardant rather than a bactericidal agent. The tubercle bacillus can be kept from growing, without being actually killed, over a wide range of concentrations of streptomycin. But this retarding action may be of considerable importance in saving lives. We have many guinea pigs surviving after treatment with streptomycin whereas the controls similarly inoculated died many months before. Guinea pigs treated with large doses of streptomycin show minimal lesions; in some cases we have not been able to find any lesions where the controls were riddled with the infection. Similarly, many patients now show complete healing of tuberculous lesions which had previously existed, whereas control patients with similar lesions still show persistence of such lesions. It is important that medicine have more experimental evidence, both in the test tube and in experimental animals, of the extent and the manner of effect of streptomycin and of the other substances which we hope will soon be developed for this purpose. But we must be happy that at last one substance has been found which, not only in the test tube and in experimental animals but also in the clinic, shows the value of experimental research in the chemotherapy of tuberculosis.

Dr. H. J. Corper, Denver: There is no discrepancy between some of these things. We notice drug houses have wisely put out streptomycin as an adjuvant and advise also continuing sanatorium treatment, and I think that is wise in view of what we know.

Clinical Notes, Suggestions and New Instruments

NEOSTIGMINE TOXICITY

Report of Fatality Following Diagnostic Test for Myasthenia Gravis

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Since the introduction of neostigmine as an aid in the diagnosis of myasthenia gravis,[1] it has been widely used for this purpose. Its injection in small doses is generally regarded as a relatively safe procedure. No reports of fatal reactions to its diagnostic use are found in the literature.

REPORT OF A CASE

A white man aged 39 consulted his physician because of generalized weakness for about two months. The history and physical examination were not remarkable except for some ptosis of the eyelids. As a therapeutic test for myasthenia gravis, 1 cc. of a 1:2,000 solution of neostigmine methylsulfate[2] was injected intramuscularly. No changes were noted for the first few minutes after injection. Then a generalized convulsive seizure occurred, five minutes after the administration of the neostigmine.

No fasciculations were noted at this time. Ten minutes after the injection, salivation and respiratory difficulty were noted, and the patient began to show signs of shock. Fifteen minutes after the injection, the pulse rate was found to be only 10 per minute, and the respiration was so depressed that artificial respiration was started. The shocklike state continued. Atropine sulfate, 0.4 mg. (gr. 1/150), and nikethamide were injected twenty-five minutes after the injection of the neostigmine

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From the Office of the Chief Medical Examiner, Baltimore, and the Department of Medicine, Johns Hopkins University.

[1] Viets, H. R., and Schwab, R. S.: Prostigmine in the Diagnosis of Myasthenia Gravis, New England J. Med. **213:** 1280, 1935. Harvey, A. M., and Whitehill, M. R.: Prostigmine as an Aid in Diagnosis of Myasthenia Gravis, J. A. M. A. **108:** 1329 (April 17) 1937. Gammon, G. D., and Scheie, H.: The Use of Prostigmine as a Diagnostic Test of Myasthenia Gravis, ibid. **109:** 413 (Aug. 7) 1937.

[2] Prepared by Hoffman-LaRoche, Inc

After this, the patient rallied somewhat, the salivation became less pronounced and the respiration and pulse improved. The pulse rate rose from 10 to 20 per minute. The injection of atropine was repeated in twenty minutes, but the patient gradually lapsed deeper into shock. The pulse became slower, the respiration more labored and the salivation and frothing more pronounced. Death occurred fifty minutes after the diagnostic injection of the 0.5 mg. of neostigmine.

At postmortem examination, the face was cyanotic. No other abnormalities were found on external examination. The body cavities were normal. The thymic remnant was somewhat larger than that usually seen. The heart was normal except for mild coronary arteriosclerosis. There was no coronary obstruction at any point, and no valvular or myocardial lesions. The lungs were hyperemic and extremely edematous, with frothy blood-tinged fluid streaming from the cut surfaces of all the lobes of both lungs. The bronchi and trachea were filled with frothy fluid. The spleen, liver and kidneys were decidedly hyperemic. The brain was normal except for considerable vascular engorgement and an increased amount of subarachnoid fluid. No other abnormalities were found. Microscopic examination confirmed the gross findings. In summary, the most striking finding at autopsy was the intense vascular engorgement occurring diffusely throughout the body, resulting in widespread capillary dilatation, edema and hyperemia of all the organs. These changes are of course characteristic of shock from any cause.

The materials used for injection were carefully investigated, to rule out any possibility of error in the strength of the solution or the technic of administration. The solution remaining in the vial used for the injection was assayed, by Mazur and Bodansky's[3] modification of Ammon's[4] method for assaying cholinesterase activity. The cholinesterase activity of this and other ampules from the same lot, tested against normal human plasma and compared with neostigmine samples of known strength, indicated that the solution used was in the proper concentration of 0.5 mg. per cubic centimeter.[5] This established the fact that only 0.5 mg. of neostigimine methylsulfate was actually injected.

COMMENT

In this case, the dramatic course of events following the injection of neostigmine suggests that the death was due to uncontrolled anticholinesterase activity. With the normal cholinesterase activity inhibited by the neostigmine, the action of acetylcholine was unopposed. A fatal vagotonic shock resulted. The microscopic pathologic changes agreed closely with those described by Altschul and Laskin[6] in their animals dying of overdosage of acetylcholine.

This profound physiologic disturbance from such a small amount of neostigmine is difficult to explain. Altschul[7] found a considerable variation in individual susceptibility to this drug in experimental animals. Possibly similar variations in susceptibility exist among the human population. Another factor is the convulsion that ushered in the untoward symptoms in this case. It is possible that the excessive neuromuscular activity occurring in a convulsive seizure produced an overwhelming amount of acetylcholine. Since cholinesterase normally destroys acetylcholine and since the cholinesterase in this case was inhibited by the neostigmine, the body was poorly prepared to cope with any increased production of acetylcholine. The acetylcholine could then accumulate in the body until it reached a concentration sufficient to induce shock. This case has certain similarities to the nearly fatal case described by Goodman and Bruckner,[8] in which muscular exercise apparently increased the acetylcholine concentration to a degree that was dangerous in proportion to the neostigmine-inhibited cholinesterase. The excessive neuromuscular activity of a convulsive seizure would doubtless liberate more acetylcholine than the walking in Goodman and Bruckner's case. The sudden onset of a convulsive seizure in a man previously free of such phenomena is of course unexplained.

Whatever the exact mechanism of the untoward result of administration of neostigmine in this case, the inescapable conclusion is, as Goodman and Gilman[9] pointed out, that the use of neostigmine demands caution and respect.

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[3] Mazur, A., and Bodansky, O.: The Mechanism of in Vitro and in Vivo Inhibition of Cholinesterase Activity, J. Biol. Chem. **163:** 261, 1946.

[4] Ammon, R.: Die fermentative Spaltung des Acetylcholins, Arch. f.d. ges. Physiol. **233:** 486, 1934.

[5] Lilienthal, J. L., Jr., and Grob, D.: Personal communication to the author.

[6] Altschul, R., and Laskin, M. M.: Microscopic Lesions in Acetylcholine Shock, Arch. Path. **41:** 11 (Jan.) 1946.

[7] Altschul, R.: Cholinergic Sensitivity, J. Nerv. & Ment. Dis. **99:** 895, 1944.

[8] Goodman, L. S., and Bruckner, W. J.: The Therapeutics of Prostigmine: A Warning Concerning Its Oral Use Based on a Personal Experience, J. A. M. A. **108:** 965 (March 20) 1937.

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STREPTOMYCIN AND SULFADIAZINE (COMBINED) IN CHRONIC BRUCELLOSIS

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The following report is made at this time because of the favorable effect of adequate dosage of streptomycin and sulfadiazine given concomitantly to a patient suffering from chronic brucellosis due to Brucella suis infection and because there is little in the current literature on the combined use of streptomycin and sulfadiazine in Brucella infection. Also it seems of value to call attention again to the fact that the hog variety of Brucella (Br. suis) is not confined to the hog-raising regions of the United States.

Sulfadiazine or other sulfonamide compounds have not proved effective in an impressive percentage of cases of chronic brucellosis, although there is much evidence that they may be effective in the acute infection. Even in the acute illness relapse frequently follows discontinuance of the sulfonamide compound.

Streptomycin is not generally accepted as effective against Brucella in vivo, perhaps because of the inconclusive early reports[1] of its failure to bring about definitive results. It is possible that these early reports were based on inadequate dosage or on insufficiently prolonged treatment, or both, as mentioned in the reports themselves. Also it is probable that there is additive effect when streptomycin is administered in conjunction with sulfadiazine, and perhaps with other sulfonamide compounds.

The apparently successful treatment of 2 patients with acute brucellosis by combined use of sulfadiazine and streptomycin was reported by Pulaski and Amspacher.[2] In a later personal communication they[3] reported similar results in 3 of 4 additional cases. The fourth patient recovered but in a manner which suggested spontaneous remission, they thought. Eisele and McCullough[4] reported successful treatment of an acutely ill patient.

In July 1947 the first opportunity was presented to evaluate the method in a chronic Brucella infection.

REPORT OF CASE

A farmer aged 42 years living in southern Maryland complained of fatigue, sweating, epigastric discomfort and severe headache in September 1946. Symptoms had recurred at irregular intervals for several weeks, but headache had been rather constant, coming on at about 9 or 10 a. m. and persisting until about 4 p. m. daily. The temperature ranged from 99 to 100.8 F. Other likely causes for his illness having been excluded, brucellosis was strongly suspected. Blood agglutination reaction with Brucella was positive in a dilution of 1:1,280 on September 28. Other laboratory study was negative or noninformative, as was physical examination.

He was referred by one of us (P. C. J.) to the other (H. J. H.) on October 7 for confirmation of diagnosis and for advice as to treatment. He was a well developed, healthy-looking man and did not appear really ill. In fact, he stated only that he was "a little damp," and mentioned briefly that he had "neuralgic headaches and stomach upsets." It required questioning to bring out that fatigue had been great and that he had had a stiff elbow for a month or two in February, with no swelling, redness or local heat. Also he recalled that he had been stiff all summer after heavy lifting, and that sexual desire had lessened.

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[2] Pulaski, E. J., and Amspacher, W. H.: Streptomycin Therapy for Certain Infections of Intestinal Origin, New England J. Med. **237:** 419-428 (Sept. 18) 1947.

[3] Pulaski, E. J., and Amspacher, W. H.: Personal communication to the authors, Oct. 8, 1947.

[4] Eisele, C. W., and McCullough, N. B.: Combined Streptomycin and Sulfadiazine Treatment in Brucellosis, J. A. M. A. **135:** 1053-1055, (Dec. 20) 1947.

He had been born in southern Maryland and had always lived on a farm in that region. There had been practically no illnesses except for "a touch of pneumonia three or four years ago." His cattle had never aborted or been suspected of having Bang's disease. The small herd of 12 or 13 cows had recently showed negative blood agglutination reactions. However, abortion had occurred among his swine; 1 sow had lost two successive litters in March and June, each time about half way through the gestation period. Interestingly the hogs had been in the same pasture with the cows in which no apparent infection developed. Raw milk was used from these cows.

Physical examination on October 7 revealed no significant abnormality. He was 71 inches (180.3 cm.) tall and weighed 181 pounds (82.1 Kg.). The spleen was not palpable. His pulse rate was 88, his temperature 100 F. and his blood pressure 120 systolic and 62 diastolic. Hemoglobin was 90 per cent (14.6 Gm.) (determined by the Dare method); the red blood cell count was 4,350,000, white blood cell count 5,500, with 46 per cent polymorphonuclear neutrophils, 2 per cent eosinophils, 51 per cent lymphocytes and 1 per cent basophils. The sedimentation rate was 45 mm. per hour (Westergren method). Microscopic blood agglutination reaction with Br. abortus was complete in 1:40 and 1:80 dilutions (tests in higher dilutions were not carried out by this method). Macroscopic tube agglutination reaction was positive in a 1:640 dilution. Opsonocytophagic reaction showed pronounced phagocytosis in 0 cells, moderate in 0 cells, slight in 17 cells and none in 8 cells, a Foshay numerical index of 17. No cutaneous test had been performed to date, but was then done, 0.1 cc. of "brucellergen" 1:12,000 dilution intradermally in one arm and 0.1 cc. of heat-killed Br. abortus organisms in the other arm. The "brucellergen" reaction was negative at the end of twenty-four and forty-eight hours and subsequently. Reaction to heat-killed Br. abortus organisms was positive.

Blood culture yielded Br. suis. Studies of susceptibility to streptomycin showed that the organism was susceptible to 1 unit of streptomycin; i. e., it was five times as resistant as standard.

Intramuscular administration of Br. abortus vaccine in any dilution necessary to avoid more than slight local, focal or systemic reaction was advised as a preliminary method of treatment, with the reservation that failure of complete recovery might occur. In that event it was suggested that streptomycin and sulfadiazine should then be administered, simultaneously, in adequate dosage and over a period of about twenty-one days. Vaccine was administered in a dilution of 1:100, intramuscularly, beginning with 0.1 cc. on October 22 and ending on November 8. Increments used were 0.1 to 0.4 cc., at intervals of three to six days, instead of the usual smaller increments and intervals of four to seven days. There were no apparent reactions to the five doses of vaccine given except for slight additonal elevation of temperature following the first two doses and lowering of fever curve following each of the latter three doses. After this regimen the patient resumed his farm work, improved but not fully recovered, still with a temperature ranging from 99.8 to 100.8 F. each afternoon. On one occasion in November the spleen was felt.

In July 1947, about one year after the onset of symptoms referable to brucellosis, because of continued low grade fever, fatigue and muscle and articular pains, the original plan for use of streptomycin parenterally and sulfadiazine orally was put into effect. Treatment was begun with 4 Gm. of streptomycin and 6 Gm. of sulfadiazine daily. After five days of this dosage of streptomycin it was reduced to 2 Gm. daily for three days and then to 1 Gm. daily for the remainder of the period of nineteen days. A total of 44 Gm. of streptomycin was used. The dosage of sulfadiazine was sufficient to keep the blood level between 5.9 and 6.3 mg. The amount of streptomycin used was less than planned because of the improvement which was evident at the end of forty-eight hours, at which time the patient was entirely free of fever and all symptoms.

There were no noticeable toxic effects from this dosage of streptomycin. It had been planned to discontinue its use at once if symptoms referable to involvement of the eighth nerve became evident.

The patient has remained afebrile and symptomless for four months, except for an unrelated sinus infection in November 1947. Blood culture for Brucella was negative at that time.

SUMMARY

So far as is known, this is the first reported case of chronic brucellosis successfully treated with streptomycin and sulfadiazine, concomitantly. The following points have been brought out: A man aged 42 years suffering from chronic brucellosis due to Br. suis showed few physical changes. There was low grade fever, slight leukopenia with relative lymphocytosis, blood agglutination reaction with Brucella in high titer, slight phagocytic activity of the white cells, positive intradermal reaction to Br. abortus killed organisms but negative intradermal reaction to "brucellergen," and positive blood culture. The increased erythrocyte sedimentation rate was of interest because it is not usual in uncomplicated Brucella infections. Also unusual was the moderate degree of intradermal reaction to killed Br. abortus organisms in a farmer whose exposure presumably had been by direct contact with infected animals. Particularly significant but not uncommon was the lack of cutaneous sensitivity to "brucellergen" but characteristic reaction to a more sensitive antigen, heat-killed Br. abortus organisms. Also of interest was the fact that the organism recovered was of the hog variety although originating in the Eastern United States.

The phagocytic reaction in this patient would be classified as "negative" by those who believe that phagocytic indexes as high as 30 may occur in blood of "normal" persons, although in fact low degrees of phagocytic activity against Brucella are a common finding regardless of the severity of infection. Had "brucellergen" been the only skin-testing antigen used, as is often the case, a negative reaction would have resulted. Had specific agglutinins not been present in high titer, the diagnosis then would have rested on blood culture alone—a procedure for which few laboratories have proper facilities or trained personnel. In this chronic illness there was the unusual good fortune to have adequate diagnostic data.

Whereas relapse still may occur, the complete freedom from any evidence of Brucella infection for a period of four months after specific treatment, following one year of chronic illness, seems sufficiently significant to justify further attempts at evaluation of this combined form of chemotherapy in acute or chronic brucellosis. Prolonged dosage of both drugs seems indicated, with sufficiently high initial dose to avoid the likelihood of resistance to streptomycin. Due regard to possible toxic effects obviously is necessary.

Painless Coronary Infarction.—Clinical statistics are presented which indicate that all suitable cases of angina pectoris can be relieved of their crushing precordial and arm pain by properly executed neurosurgical procedures. These patients do not lose the danger signal which warns against over-exertion, but it is no longer agonizing pain. In skilled hands surgical intervention is no more dangerous than any of the other common major operations in this age group. Once relieved of their pain, these patients are able to live happier and more active lives, free from fear of ever-recurring attacks and less conscious of impending death. They are no longer threatened with addiction to morphine, lack of sleep, and worry, which so often are factors accelerating termination of life by coronary occlusion. If fatal coronary infarction takes place, it is usually painless.—White, James C., and Bland, Edward F.: *Medicine*, February 1948.

Council on Pharmacy and Chemistry

The Council has authorized publication of the following statement.

AUSTIN SMITH, M.D., *Secretary.*

Report to the Council on Pharmacy and Chemistry by the Committee on Drug Addiction and Narcotics of the National Research Council, prepared for the committee by Dr. Nathan B. Eddy, Secretary.

METOPON HYDROCHLORIDE

(Methyldihydromorphinone Hydrochloride)

Metopon (or methyldihydromorphinone) represents a new type of nuclear substitution in the morphine series for which the method of preparation was discovered by Small in 1936. The essential difference in metopon is the presence of a methyl group attached to the hydroaromatic ring of morphine. It also differs from morphine by the presence of a ketone in place of the alcoholic hydroxyl and by removal of one double bond by hydrogenation. Pharmacologic examination and clinical trial demonstrated that these chemical changes effected quantitative dissociation of components of the morphine picture - increase in analgesic action, decrease in euphoric, sedative, emetic and intestinal effects. Tolerance to and dependence on metopon developed more slowly and tolerance disappeared more rapidly than with morphine. Substituted for morphine in cases of addiction, it did not fully satisfy the craving or completely suppress abstinence phenomena. The minimal analgesic dose, the incidence of adequate relief and of side actions, and the duration of action were the same for oral and hypodermic doses administered for the relief of clinical pain.

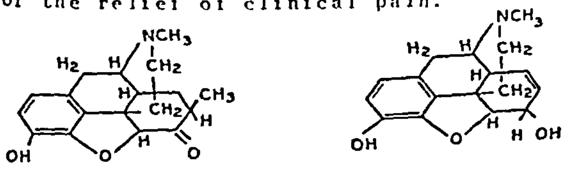

Fig. 1.—Structural formulas of metopon (methyldihydromorphinone) on the left and morphine on the right.

In review of the evidence on metopon in 1946 the Drug Addiction Committee of the National Research Council judged that in comparison with morphine the differences already outlined were clearly demonstrated. The Committee believed that these differences indicated the possibility of advantageous employment of the drug by the oral route for the control of chronic pain such as that in cancer. To test this possibility they recommended limited commercial production and distribution of metopon under a plan of supervision which would channel the drug to cancer patients only and which would seek to gather reports on its effectiveness for such cases in general practice. The plan of supervision has been published,* and this report reviews the first six months of its operation from May 15 to Nov. 15, 1947.

Figure 2 presents a graph of the amount of metopon distributed on original orders and reorders. Two thousand, eight hundred and twenty-nine physicians have ordered the drug for 4,288 patients. As of November 15, 20 per cent of all physicians who had ordered metopon had reordered and 33 per cent of these had reordered more than once. Both these figures are lower than the true extent to which physicians are reordering, since the figure for physicians ordering initially is also compiled to November 15 and obviously some proportion on that date had not yet received the drug and a larger number had used it too short a time to reorder. One hundred and six reorders were received in the three week period November 15 to December 5; fifty-five were from physicians reordering for the first time. In other words, as of December 5, 21.8 per cent of the physicians who had ordered metopon by November 15 had reordered at least once, which certainly represents only a partial correction for the time factor. Another estimate of the continuing use of the drug is derived from physicians' reports. Three hundred and forty, or 12 per cent, of physicians have reported on or signified their intent to use metopon for 461 additional patients, approximately 11 per cent of the number for whom the drug was ordered originally.

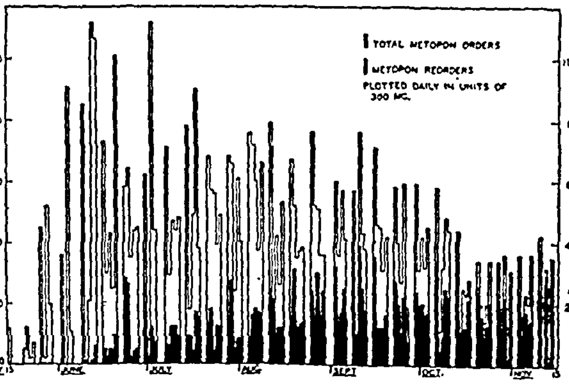

Fig. 2.—Amount of metopon distributed on orders and reorders.

Only eighteen orders for metopon have been rejected because the case for which it was intended was not one of cancer, cancer being interpreted in a broad sense to include all types of malignant tumor. A few physicians have asked or have tried to use the drug on other patients in addition to 1 or more patients with cancer, but to the best of our knowledge the drug has been sought for only 43 noncancerous patients, only 1 per cent of the total. Only ten other original orders have been rejected either because a satisfactory statement in regard to the diagnosis or the attending physician has not been supplied or because the narcotic order has been improperly executed. In each instance an effort was made to get the information or to have the error corrected before the order was rejected.

One of the requirements of the Committee's program of supervision is that a reorder shall be filled only after the physician has reported on the use of metopon. One hundred and one physicians have overlooked this requirement, but most have responded promptly when reminded of it. Only eleven reorders have been rejected because we were unable to get a report. Some reorders are received with which the physician states that he intends the drug for a new patient. Such reorders are approved whether or not the physician has reported, though he is asked again under these circumstances for a report on each case and usually responds promptly.

Practically all the cancer patients for whom metopon has been sought were in the terminal stage of recurrence and/or metastasis. Two hundred and twenty-seven, or 5 per cent, are known to have died before the drug could be received. Physicians have reported nonuse of the drug after ordering in 131 other cases, principally because other medical care was obtained, the patient moved from the locality or there was a recession in the pain of the disease. Correcting the total number for deaths, nonuse and noncancerous cases, metopon is presumed to have been used for 3,887 patients. This figure is undoubtedly too high, because deaths and nonuse certainly were not reported completely. Physicians have reported on the use of the drug in 1,841 cases. Some effort is required to attain this response, since four hundred and twenty-six reminder letters have been written and several hundred more are being written now. Reports from two hundred and ninety physicians have been received through these reminders. Tables 1 and 2 present a general summary of all reports.

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*J.A.M.A. 134:291-292, 1947; J. Am. Pharm. A. (Pract. Pharm. Ed.) 8:430-433, 1947. Also in most of the state medical association journals, June to October, 1947.

Table 1.—*General Summary of Reports on the Use of Metopon**

Reasons given for trial of metopon:		
For better pain relief	946	
To avoid hypodermic administration	389	
Nausea and/or vomiting with morphine or other narcotic	277	
Mental dulness with morphine or other narcotic	87	
To avoid addiction	63	
Trial, no specific reason given	274	
Reports judged to indicate fair trial	1,341	
Reports unsatisfactory for assessment of analgesic effect	500	
Pain relief: Complete	477	(80 %)
Fair	598	
Poor	187	
None	79	
Mental condition: Clear	1,142	(75%)
Dull	286	
"Dopey"	75	
Confused	29	
Sleep promoted or permitted by relief of pain	445	(27 %)
Sleep not promoted	1,192	

*In each table figures represent cases in which the item is reported. Totals for pain relief, mental condition and sleep are uneven because of inadequacy of data on some reports.

Among the reasons given for trial of metopon, "for better pain relief" usually means that tolerance to other narcotics has already developed, since it is always specifically stated for these cases that previous medication was inadequate. Also other narcotics (morphine, codeine, dihydromorphinine, "pantopon" the total alkaloids of opium as soluble hydrochlorides or meperidine, in various sequences or combinations, frequently all of them) have been administered for six months or more in 39 per cent and for two months or more in 72 per cent of all cases for which information on this point is available. There was no narcotic medication prior to metopon in only 74 cases.

Table 2.—*Side Reactions with Metopon*

None	1,502	Disturbing dreams	6
Nausea	87	Itching	4
Restlessness	23	Anorexia	3
Headache	14	Urticaria	2
Perspiration	12	Tinnitus	2
Dryness or burning in throat and stomach	10	Allergic reaction	1
		Edema of face	1
Dizziness	9	Palpitation	1
Euphoria	7	Hiccup	1
Burning of skin and/or hot flushes	6	*Difficulty in urination*	1
Nausea, previously reported (277), persisting after metopon			27
Signs of physical and psychic dependence for which metopon was discontinued after brief trial			104
Signs of physical dependence disappearing under continued administration of metopon			45

With respect to other reasons for trial of metopon, the figure for "nausea and or vomiting with morphine or other narcotic" is surely too low. Unfortunately, a specific query on this point was not on the protocol sent to physicians to report results. Also there are included under "trial, no specific reason given" all cases in which it is said that the patients were intolerant to morphine or that they wished to avoid side effects, but for whom emetic action is not directly stated.

In table 1 effects are shown without regard to the dose employed. All reports which show dose and effect, are included in the tally unless attending conditions are described which obviously vitiate the result. These include attempted administration to patients close to death, attempted administration where nothing given by mouth was being retained and cases in which one or at most only a few doses of metopon were given because of the patient's demand for return to hypodermic medication with or without the appearance of signs of physical dependence, the physician admitting that addiction to morphine or other narcotic was the reason for failure. There were 104 cases in which administration of metopon was shortly discontinued because of its failure to satisfy an existing addiction and its inability to prevent the occurrence of abstinence phenomena. Pain relief was admitted to be fair or better in only 25 per cent of this group. On the other hand, 45 cases have been reported in which in spite of the appearance of abstinence phenomena administration of metopon was continued. The withdrawal signs disappeared gradually, and the net result was excellent. It is probable that some of the symptoms listed in table 2 as side reactions were in fact abstinence phenomena. This is especially probable for the symptom of nausea, which frequently did not appear until after several doses of metopon had been given or at about the time after the last dose of the previous narcotic at which one would expect to see the first signs of withdrawal. It is noteworthy that nausea after metopon therapy was reported in only 27 of the 277 patients known to have been nauseated by previous medicaments.

Restlessness as a side effect has been reported in 23 instances. This is in addition to the group previously mentioned in which mental agitation and anxiety as signs of psychic dependence caused the physician to discontinue administration of metopon. Euphoria was noted only in 7 instances. In 73 per cent of the cases metopon was said not to promote sleep. Even when the report indicates that sleep followed its administration, the note is often added that this is probably *only secondary* to the relief of pain. The retention of mental clarity, the absence of euphoria and general sedation were sometimes considered disadvantageous. Twelve times, although in most instances pain relief was adequate, metopon was discontinued *because* of lack of sedative effects. Sometimes the physician found it desirable to give a barbiturate or a small dose of another narcotic at bedtime.

The recommended starting dose of metopon *for oral administration is not less than 6 mg.* This has been clearly stated in all literature on the use of the drug under this program. Cross tolerance among the opiates has also been referred to, and the possibility of cross tolerance to metopon after prolonged *administration of morphine* and related substances. Such cross tolerance would be expected to require upward adjustment of dosage. There*fore*, to facilitate close adjustment of dose to need under varying circumstances the dosage form *originally* adopted is a capsule containing 3 mg. of metopon hydrochloride and the dose *is* "two or three capsules to be repeated only on recurrence of pain." It is surprising that physicians have commonly disregarded all dosage recommendations, *directing that the capsules be taken singly* at least initially. In 28 per cent of all trials the amount of drug per dose has not *been* increased beyond 3 mg. In 45 per cent of trials administration has started at or has shortly been increased to 6 mg. In 25 per cent of trials the dose has been increased to 9 mg., but in only 2 per cent has it been increased beyond that level.

Reference has already been made to the extent of narcotic administration prior to trial of metopon. This breaks down readily into three categories: (1) no previous narcotic, 74 cases; (2) narcotic administration for six weeks or less, a period in which relatively little tolerance and dependence will have developed as a rule, 339 cases, and (3) narcotic administration for two months or more, when some tolerance and dependence will almost certainly have developed, 1,200 cases.

Table 3.—*Influence of Previous Narcotic Administration on the Result Obtained with Metopon, 6 Mg. per Dose*

	No Previous Narcotic	Narcotic Administration 6 Wk. or Less	Narcotic Administration 2 Mo. or More
Number of cases	35	152	492
Pain relief:			
Complete	19(54%)	69 (45%)	135 (27%)
Fair	13(37%)	37 (24%)	199 (40%)
Poor	1	30	105
None	2	16	53
Incidence of nausea	0	5 (1:30)	20 (1:24.5)

Using only the results of 6 mg. doses of metopon, table 3 summarizes the influence of the previous medication. Quite definitely the incidence of adequate relief, fair or better, and particularly of complete relief is less the more previous narcotic medication the patient had received. It should be pointed out, however, that there is probably a relation between the duration and severity of the disease, at least the severity of pain as a symptom of the disease, and the extent of previous medication, so that cross tolerance may not entirely account for the difference shown.

The incidence of nausea as a possible side effect increases from none (where there had been no narcotic given prior to metopon) to about once in twenty-four times where there had been the greatest amount of previous medication. This supports the suggestion already made that some of the symptoms listed as side effects were really withdrawal symptoms. It is also possible in line with the statement of the previous paragraph that at least part of the nausea was incidental, related to the advanced stage of the disease and widespread metastases, and not associated with the medicament.

Two hundred and fifty-eight physicians have reported more than once on the effect of metopon in the same patient. In 164 cases the effect was the same at intervals of one to twenty weeks without change in dose; in 24 cases the effect was reported as increased in the second report, and in 70 cases it was diminished. In other words, there is no evidence of tolerance to metopon in 127, or 50 per cent, of cases in which administration is known to have continued for at least four weeks and none in 37, or 14 per cent, of cases of continued administration for eight weeks or more.

In some reports duration of effect is specifically stated as five to ten hours. In many more it is indicated only indirectly by the statement that only two or three doses per day were taken. In a few instances the effect has been reported as brief, one hour or less. In another small group the patients have complained of slowness of onset of pain relief.

In conclusion, this six months of experience with metopon in general practice has confirmed the earlier results of controlled clinical trials. It is an adequate analgesic for severe chronic pain when administered orally, and such administration is attended by a high degree of mental clarity and few side reactions. The satisfactoriness of its use is improved if its administration is begun as soon as the need for a potent analgesic arises, before the administration of morphine and other related substances has led to diminished effectiveness through the development of tolerance. The committee believes that the production of metopon should be continued, but that it should be recommended and made available only for oral administration for chronic pain. On May 15, 1948 the present program of supervision of the distribution of metopon by the Committee on Drug Addiction of the National Research Council will be terminated. Thereafter the drug may be obtained through regular channels in the same way as morphine and related substances. It must be remembered, however, that metopon is a morphine derivative and, like the latter, subject to narcotic regulations.

The drug will continue to be available only in capsule form for oral administration. Since it is important to hold narcotic administration to a minimum, to facilitate this and to permit adjustment of dose to the need of a particular case each capsule will contain 3 mg. of metopon hydrochloride. The minimal effective analgesic dose in nontolerant persons is 6 mg. Therefore, the dose is two capsules for persons who have not taken morphine and related substances previously, and it may be three or more capsules for persons already tolerant to morphine and the like. Institution of treatment with metopon hydrochloride in the latter group should be accompanied by rapid reduction rather than abrupt discontinuance of the previous medication.

The Committee on Drug Addiction and Narcotics of the National Research Council through its secretary (Nathan B. Eddy, National Institute of Health, Bethesda 14, Md.) will be glad to continue its correspondence with physicians in regard to their experience with metopon hydrochloride and to advise them on the use of the drug.

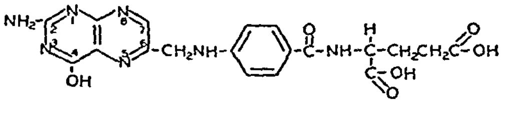
NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

Austin Smith, M.D., *Secretary.*

FOLIC ACID.--Pteroylglutamic acid.--N 4 (2-amino-4-hydroxy-6-pteridyl)-methyl -amino -benzoyl glutamic acid.--$C_{19}H_{19}O_6N_7$.--M.W. 441.4.

The structural formula of folic acid may be represented as follows:



Actions and Uses.--(See New and Nonofficial Remedies 1947, p 517).

Dosage.--(See New and Nonofficial Remedies 1947, p 517).

Tests and Standards

Folic acid occurs as a yellowish-orange crystalline powder.

It is insoluble in ethanol, benzene, chloroform, ether and water, although very slightly soluble in hot water.

Dissolve about 5 mg. of folic acid in 5 cc. of glacial acetic acid. Add 1 cc. of 30 per cent hydrogen peroxide and allow to stand for 4 hours: the solution is completely decolorized.

Dry about 0.1 Gm. of folic acid, accurately weighed, in vacuum over phosphorus pentoxide at room temperature in the dark for 120 hours: the loss in weight does not exceed 10 per cent.

Char over a low flame 0.2 Gm. of folic acid, accurately weighed. Cool, then moisten the charred material with 1 cc. sulfuric acid. Cautiously ignite until ashing is complete: the residue does not exceed 0.5 per cent on the anhydrous basis.

Treat the residue from the sulfated ash with 2-3 drops of hydrochloric acid and evaporate to dryness on the steam bath. Add 10 cc. of 2 per cent hydrochloric acid and heat for 5 minutes on the steam bath. Filter through paper into a Nessler tube. Repeat the acid treatment of the residue with 10 cc. more of 2 per cent hydrochloric acid. Dilute to 25 cc., and add 10 cc. of hydrogen sulfide T.S. Allow to stand in the dark for 10 minutes: no more turbidity develops than corresponds to 50 parts per million of lead (U.S.P. XIII).

Place about 100 mg. of para-aminobenzoic acid, accurately weighed, in a 100 cc. volumetric flask, add 50 per cent ethanol to dissolve the solid, and dilute to the mark with 50 per cent ethanol. Transfer 1 cc. of the p-aminobenzoic acid solution to a 250 cc. volumetric flask, add 200 cc. of water, 25 cc. of 5 N hydrochloric acid, 2.5 cc. of a 0.5 per cent gelatin solution (0.5 Gm. gelatin and 0.1 Gm. benzoic acid in 100 cc. water), and finally dilute to the mark with water. Prepare a standard curve, using sufficient solution to give a range of final concentrations of 4 to 20 micrograms, developing the color as described for folic acid as follows:

Weigh, accurately, about 0.1 Gm. of folic acid and transfer to a 100 cc. volumetric flask. Dissolve the folic acid and dilute to the mark with 0.1 N sodium hydroxide. Transfer 1 cc. of the solution to a 100 cc. volumetric flask and add 80 cc. of water, 10 cc. of 5 N hydrochloric acid, 1 cc. of 0.5 per cent gelatin solution, and water to the mark. Withdraw 2 cc. of the mixed solution before reduction and determine the free amine as directed for p-aminobenzoic acid. Transfer the rest of the solution to a 250 cc. Erlenmeyer flask and add 0.5 Gm. of zinc dust. Allow the mixture to stand 10 minutes with intermittent shaking. Filter to free the reduced solution from zinc dust. Pipette 2 cc. of the reduced solution to a 10 cc. volumetric flask. Dilute to 6.6 cc. with water, add 0.4 cc. of 5 N hydrochloric acid and 1 cc. of 0.1 per cent sodium nitrite solution. Mix and let stand 3 minutes and add 1 cc. of 0.5 per cent ammonium sulfamate solution. Mix and let stand 2 minutes, add 1 cc. of a 0.1 per cent N-(1-naphthyl)-ethylenediamine dihydrochloride solution. Mix and allow to stand 5 minutes. Read the light absorption of the solution with a spectrophotometer at 5500 Å, using water as a blank. Determine the concentration of the solution in terms of p-aminobenzoic acid from the standard curve.

Calculate the total folic acid present from the following equation:

$$\text{micrograms as p-aminobenzoic acid} - \text{micrograms free amine} \times \frac{441.4}{137.06} = \text{folic acid found}$$

The folic acid content is not less than 90 per cent on the anhydrous basis.

Folic Acid Tablets

Weigh, accurately, 25 tablets of folic acid. Grind to a fine powder in a mortar and then weigh out an amount equivalent to 100 mg. of folic acid. Transfer the weighed portion to a 100 cc. volumetric flask and dilute to 100 cc. with 0.1 N sodium hydroxide. Centrifuge and transfer 1 cc. to a 100 cc. volumetric flask, and continue the assay for folic acid as described in the preceding paragraphs, beginning with the sentence "Transfer 1 cc. of the solution to a 100 cc. volumetric flask . . .". The folic acid content of the tablets is not less than 90 nor more than 115 per cent.

AMERICAN PHARMACEUTICAL CO., INC., NEW YORK

Tablets Folic Acid: 5 mg.

KREMERS-URBAN CO., MILWAUKEE

Tablets Folic Acid: 5 mg.

LEDERLE LABORATORIES DIVISION, PEARL RIVER, N. Y.

Elixir Folvite: 5 mg. per 4 cc., 125 cc. bottles.

Solution Sodium Folvite: 15 mg. per cc. ampuls.

Tablets Folvite: 5 mg.

U. S. patent pending. Trademark Registered

R. J. STRASENBURGH CO., ROCHESTER, N. Y.

Tablets Folic Acid: 5 mg.

2,3-DIMERCAPTOPROPANOL IN OIL.—BAL in Oil-H. W. & D.—A solution of 2,3-dimercaptopropanol 10 per cent in peanut oil, containing benzyl benzoate 20 per cent.—$C_3H_8OS_2$—M. W. 124.21

Actions and Uses.—2,3-Dimercaptopropanol in oil is indicated in the treatment of arsenic, gold and mercury poisoning.

2,3-Dimercaptopropanol is particularly useful in the treatment of hemorrhagic encephalitis due to massive arsenotherapy, arsenical or gold dermatitis and possibly postarsenical jaundice but not homologous serum jaundice following parenteral therapy. It is useful as an adjunct in the treatment of agranulocytosis due to arsenic, but other measures, principally massive doses of penicillin, must also be employed.

While 2,3-Dimercaptopropanol in oil is indicated in the treatment of mercury poisoning, it must be remembered that mercury causes rapid and extensive tissue damage, particularly to the kidneys, which cannot be corrected by the administration of this drug. The use of 2,3-Dimercaptopropanol in oil in the treatment of mercury poisoning is still in the experimental stage, and definite recommendations cannot be made.

The toxicity of the drug appears to be less in patients suffering from arsenic, gold or mercury poisoning, but doses of 300 mg. per kilogram of body weight may produce nausea, vomiting and headache; a burning sensation of the lips, mouth, throat and eyes; generalized muscular aches with burning and tingling of the extremities, and a sense of constriction in the chest. The symptoms usually subside in thirty to ninety minutes.

Dosage.—In the treatment of arsenic or gold poisoning, 3 mg. per kilogram of 2,3-Dimercaptopropanol (as a 10 per cent solution in oil) should be administered by intramuscular injection as follows: every four hours for the first two days; four injections on the third day, and injections twice daily thereafter for ten days or until complete recovery. In milder cases the dose may be reduced to 2.5 mg. per kilogram.

HYNSON, WESTCOTT & DUNNING, INC., BALTIMORE

Solution Bal in Oil: 4½ cc. ampuls. 2,3-Dimercaptopropanol 10 per cent and benzyl benzoate 20 per cent in peanut oil.

Council on Physical Medicine

ABSTRACT OF MINUTES OF MEETING OF THE COUNCIL ON PHYSICAL MEDICINE

Dec. 12 and 13, 1947

The Council on Physical Medicine held its regular annual meeting on Dec. 12 and 13, 1947. Those present were Drs. Morris A. Bowie, Anthony C. Cipollaro, W. W. Coblentz, John S. Coulter, W. E. Garrey, W. E. Grove, Frank H. Krusen, Frank R. Ober, George Morris Piersol and Derrick Vail. Dr. John S. Coulter was reappointed chairman and Dr. Frank H. Krusen, vice chairman. Dr. Krusen was acting chairman.

Dr. George M. Piersol presented a report from the Consultants on Clinical Thermometry. Two articles are being written on the subject. He stated that the commonly accepted idea about normal clinical temperatures is far from accurate and a report will be available in due time.

The subject of ion transfer employed therapeutically was discussed. The critical evidence is limited, and in the opinion of the Council the problem should be studied further.

With regard to muscle stimulation, the Council believes that there is no necessity for a multiplicity of current combinations in an apparatus, since there is no critical evidence to justify their use.

The Official Rules of the Council on Physical Medicine were discussed and brought up to date. Several minor changes were made in the body of the booklet. Rule 9, "Policies of Firms Detrimental to Rational Therapeutics," was revoked.

The question whether hearing aid manufacturers be allowed to state that a hearing aid is accepted if it meets the requirements (that is, before it is formally accepted) was discussed. It was decided that all manufacturers should adhere to the rules and that no exceptions should be made.

The articles on atomic energy which were assigned to subcommittees of the Consultants on the Medical Aspects of Atomic Energy and Roentgen Rays and Radium have not been received. Dr. Edward Bortz, President of the American Medical Association, in a letter commended the Council on Physical Medicine for its work on atomic energy. He emphasized the importance of informing the members of the medical profession concerning the clinical value of radioactive isotopes and urged a more aggressive educational program. The revision of the glossary of terms used in atomic energy is proceeding.

The Council expressed its willingness to cooperate with the Council on Medical Education and Hospitals in the evaluation of schools for physical therapists and occupational therapists.

The Secretary was instructed to approach the Consultants on Education of the Council in order to formulate recommendations with regard to minimal suggested science requirements for admission to courses in physical therapy. These recommendations will then be presented to the Council on Medical Education and Hospitals.

The Council members voted that the Council on Scientific Assembly consider establishing a permanent Section on Physical Medicine beginning with the association meeting in 1949.

Due to the fact that the Committee on American Health Resorts was disbanded by the Board of trustees, the Council voted to appoint a group of Consultants on American Health Resorts.

The Council reaffirmed its ruling in regard to germicidal lamps as recorded in "Acceptance of Ultraviolet Lamps for Disinfecting Purposes."

In discussing the subject of ultraviolet radiation and cancer, it was revealed that the following two factors are responsible for cancer of the skin: (1) the quality of the radiation 2,900 to 3,200 angstrom units and (2) the quantity of the irradiation.

The use of radium in treating deafness was discussed at length. It was concluded that until definite evidence is adduced that the treatment is dangerous, advertising of such treatment may be continued in the publications of the American Medical Association.

Dr. Henry Schwerma presented a report on the research in artificial respiration which has been supported by a grant from the Board of Trustees.

The work of the Consultants on Contraceptive Devices, Audiometers and Hearing Aids, Electrocardiographs, Electroencephalographs and Respirators was reviewed.

The resignation of Dr. Grove as chairman of the Consultants on Audiometers and Hearing Aids because he is now a member of the Council was accepted with regret. Dr. Hallowell Davis was appointed to fill the vacancy.

The Council voted to disband the group of Consultants on Ophthalmic Devices because the same members serve as the Committee on Optics and Visual Physiology, and it is too large and busy to consider problems coming before the Council. A new group will be appointed.

Dr. Paul Klopsteg reported on the activities of the Consultants on Artificial Limbs. It was the general consensus that the present group is too large to work efficiently, and it was decided to appoint a new group of Consultants on Artificial Limbs. The revision of the Handbook on Amputations is to be postponed until the large book being prepared by the Committee on Artificial Limbs of the National Research Council has been published. Dr. Klopsteg was appointed to prepare an article on the subject of artificial limbs for the general medical profession. Drs. Ober and Dickson were appointed to serve on a committee to study ways and means to improve the training of those who fit artificial limbs.

The Council voted to revise the Handbook of Physical Medicine.

AN APPRECIATION

The Council on Physical Medicine desires to take this opportunity to express its gratitude and appreciation for the services of the following consultants, whose assistance in carrying out the work of the Council has been given so freely during the past year (1947): Drs. Charles Bahn, Alvan L. Barach, A. R. Barnes, Edward Bigg, Raymond Carhart, Milton B. Cohen, Earl Elkins, Alan Feinberg, Clarence J. Gamble, K. G. Hansson, L. G. Hardy, E. D. Hauser, J. S. Hibbin, A. Hollaender, M. Joannides, H. W. Kendell, Margaret Kunde, V. Lespinasse, Alfred Lewy, G. Martin, A. Olsen, Stafford L. Osborne, Howard F. Polley, Mr. Luther Ramer, Drs. Scott N. Reger, Henry Schwerma, Daniel Snydacker and G. De Takats, Miss Eva Thompson, Drs. Khalil G. Wakim, Ralph Waters, Harold Westlake, Paul H. Wosika, Jessie Wright and C. R. Zeiss.

Artificial Limbs.--Drs. Henry H. Kessler, Paul Klopsteg, Harry E. Mock, S. Perry Rogers, Paul B. Steele and Philip Wilson; Messrs. McCarthy Hanger Sr., W. E. Isle, J. B. Korrady, Joseph A. Spievak and David E. Stolpe.

Medical Aspects of Atomic Energy.--Drs. Kenneth S. Cole, L. F. Curtiss, Hymer L. Friedell, Shields Warren and Stafford L. Warren.

Audiometers and Hearing Aids.--Drs. Gordon Berry, Hallowell Davis, Kenneth M. Day, E. P. Fowler, Isaac H. Jones, Dean Lierle, Moses Lurie, Douglas Macfarlan, C. Stewart Nash and Paul E. Sabine.

Clinical Thermometry.--Miss Johanna Busse, Drs. George Crile Jr., Eugene DuBois, Steven M. Horvath, John Talbot and George Thorn.

Contraceptive Devices.--Drs. William W. Greulich, Joseph Hughes and Andrew C. Ivy, Professor Walter J. Meek, Mr. R. R. Olin and Dr. Ephraim Shorr.

Education.--Drs. Frances Baker, Robert L. Bennett, *Benjamin Boynton, Earl C. Elkins, F. H.* Ewerhardt, Richard Kovacs, Fred B. Moor, W. H. Northway, William Schmidt, Walter M. Solomon, Arthur L. Watkins, George D. Wilson and Walter J. Zeiter.

Electrocardiographs.--Drs. A. R. Barnes, George Fahr, Harold E. B. Pardee, William D. Stroud, Carl J. Wiggers and Frank N. Wilson.

Electroencephalographs.--Drs. Percival Bailey, Edward J. Baldes, Stanley Cobb, Hallowell Davis and Frederic A. Gibbs.

Occupational Therapy.--Drs. Raymond R. Allen, Robert W. Johnson Jr., Winfred Overholser, Howard A. Rusk and William D. Stroud.

Ophthalmic Devices.--Drs. *Thomas D. Allen*, S. Judd Beach, Conrad Berens, Frederick C. Cordes, Alfred Cowan, Walter B. Lancaster, William H. Luedde, Lawrence T. Post, Avery D. Prangen and *Kenneth C.* Swan.

Respirators.--Drs. Edward L. Compere, Charles F. McKhann and James L. Wilson.

Roentgen Rays and Radium.--Drs. William E. Chamberlain, Arthur C. Christie, Edwin C. Ernst, Giocchino Failla, Fred M. Hodges, Robert R. Newell, Eugene P. Pendergrass, Ursus V. Portmann, Lauriston S. Taylor and J. L. Weatherwax.

The Council on Physical Medicine has authorized publication of the following reports. HOWARD A. CARTER, *Secretary.*

INTERMITTENT POSITIVE PRESSURE BREATHING

A MEANS OF ADMINISTERING ARTIFICIAL RESPIRATION IN MAN

H. L. MOTLEY, M.D.
A. COURNAND, M.D.
L. WERKO, M.D.
D. T. DRESDALE, M.D.
A. HIMMELSTEIN, M.D.
and
D. W. RICHARDS JR., M.D.
New York

Intermittent positive pressure breathing, produced by artificial means, is brought about by actively raising the pressure in the lungs during inspiration, the expiratory phase being either passive or mediated through an active mechanism creating negative pressure in the lungs (table 1). Effective ventilation may thus be maintained in apneic subjects, and at the same time the Hering-Breuer reflex is stimulated by distention of pulmonary alveoli. According to Drinker,[1] this is the best line of attack for the promptest possible restoration of normal respiratory movements. Intermittent positive pressure breathing may be given by mouth to mouth insufflation, a simple effective method seldom used. A more commonly employed method consists in applying intermittent positive pressure through an anesthesia breathing bag, which may be equipped with a safety valve set at 14 mm. of mercury as advocated by Waters.[2] A manual bellows respirator[3] with a safety valve that prevents excessive pressure is another means for giving intermittent positive pressure,[4] and a device of this sort has been accepted by the Council on Physical Medicine.[5] More recently another type of manual respirator (suck and blow) has been accepted[6] which has a pressure range from plus 20 to minus 10 mm. of mercury. Automatic mechanical intermittent pressure respirators include the accepted[7] "suck and blow" type with pressures ranging from plus 14 mm. to minus 9 mm. of mercury. Another type studied recently, the pneumatic balance respirator[8] developed by the Army Air Corps, is small and compact in size and has been found simple in operation and effective in providing adequate artificial respiration.[9]

TABLE 1.—*Comparison of Types of Apparatus*

Each of the seven types of apparatus compared in this report is identified by a number so as not to indicate the manufacturer; a list of the chief characteristics and a brief description of each type is given.

Type	Chief Characteristics	Description
1	Pressure-sensitive air-balanced valve	A gas-driven automatic device which administers intermittent positive pressure, the interruption being determined by a pressure-sensitive air-balanced valve. It is known also as pneumatic balance resuscitator (P. B. R.)
2	Pressure-sensitive spring-loaded valve	A gas-driven automatic device which administers intermittent positive pressure, the interruptions being determined by a pressure-sensitive spring-loaded valve
3	Flow-sensitive "Aviation Model"	A gas-driven device which administers intermittent positive pressure, the interruptions being determined by a flow-sensitive valve. It is known also as "Aviation Model"
4	Flow-sensitive "Research Model"	A gas-driven device, similar to type 3 but having in addition many adjustable features that make it versatile for scientific investigations: it is known therefore as "Research Model"
5	"Suck and blow"	A gas-driven device in which positive pressures alternate with negative (subatmospheric). The mechanism consists of a spring-loaded pressure-sensitive valve and in addition a Venturi device for producing suction
6	Hand-operated: slow	A hand-operated device in which positive pressure is produced by compressing a bellows; it is provided with a safety valve opening at a fixed pressure
7	*Hand-operated: fast*	*A hand-operated device* similar to type 6 but provided with a safety valve permitting faster escape of air

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From the Department of Medicine, Columbia University, and the Chest and Medical Services of the First (Columbia University) Division, Bellevue Hospital.

This work was performed under contract with the Aero Medical Laboratory, Wright Field, Dayton, Ohio. Additional support was provided by the Commonwealth Fund and the Life Insurance Medical Research Fund.

[1] Drinker, C. K.: Pulmonary Edema and Inflammation, Cambridge, Mass., Harvard University Press, 1945, p. 88.

[2] Waters, R. M.: Simple Method for Performing Artificial Respiration, J. A. M. A. **123:** 559 (Oct. 30) 1943.

[3] The automatic and manual devices used to provide artificial respiration are commonly referred to as resuscitators. We shall refer to them as respirators, as resuscitation implies more than maintenance of respiration.

[4] Kreiselman, J.: New Resuscitation Apparatus, Anesthesiology **4:** 608 (Nov.) 1943.

[5] Kreiselman Resuscitator Bellows Type, Model 110, Acceptable, report of Council on Physical Medicine, J. A. M. A. **126:** 99 (Sept. 9) 1944.

[6] Lungventilator Acceptable, report of Council on Physical Medicine, J. A. M. A. **131:** 1059 (July 27) 1946.

[7] E. & J. Resuscitator and Inhalator Acceptable, *report* of Council on Physical Medicine, J. A. M. A. **112:** 1945 (May 13) 1939. Emerson Resuscitator Hospital and Portable Models Acceptable, report of Council on Physical Medicine, ibid. **119:** 414 (May 30) 1942.

[8] Burns, H. L.: Pneumatic Balance Resuscitator, Air Surgeon's Bull. **2:** 306 (Sept.) 1945.

[9] Motley, H. L.; Cournand, A.; Eckman, M., and *Richards, D. W.*, Jr.: Physiological Studies on Man with Pneumatic Balance Resuscitator, "Burns Model," J. Aviation Med. **17:** 431 (Oct.) 1946.

A survey of the literature shows a lack of experimental physiologic data reported on man in condemnation or in support of the various respirator devices, with the exception of the one report given on the pneumatic balance type. The design of respirator apparatus for use on man has been based largely on data obtained on animals with respect to (*a*) the upper limit of pressure that could be used safely, (*b*) the beneficial effect of the "suck and blow" type on the circulation as claimed by some[10] and denied by others[11] and (*c*) the absence of pulmonary damage produced by intermittent pressure breathing with and without the negative phase.[12]

The curve of pressure of inspired air, registered at the mask, differs with different forms of respirator apparatus. There has been up to the present time little information on the quantitative effects of these various forms of artificial respiration on the circulatory dynamics in man. Therefore it seemed desirable to obtain direct physiologic measurements by making use of recent technics, including right heart catheterization,[13] on the pulmonic and systemic circulation in man when various types of respirators were used producing either intermittent positive pressure alone or combined with negative pressure during part of the cycle. In the present study physiologic and clinical observations have been made with various types of intermittent pressure respirators on 79 subjects. The data have been analyzed to determine the physiologic requirements of an ideal respirator, one which would provide adequate pulmonary ventilation with a minimal disturbance to the circulation. In addition the efficiencies of several respirators have been compared with manual methods, such as the Schaefer, for producing pulmonary ventilation in the type of subject who needs artificial respiration.

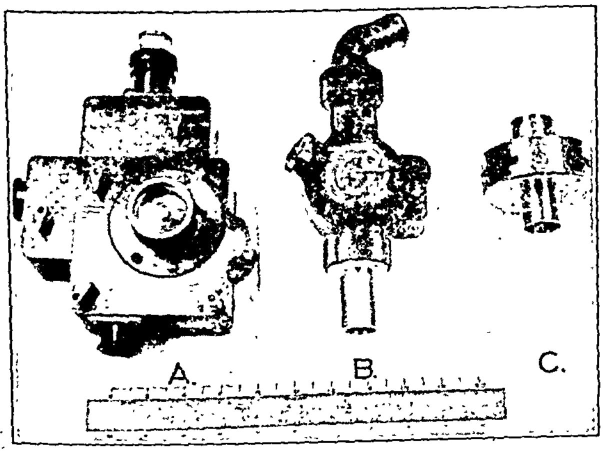

Fig. 1.—Automatic respirators: *A*, clinical research model, type 4; *B*, "Aviation Model," type 3; *C*, type 1.

DESCRIPTION OF THE VARIOUS TYPES OF RESPIRATOR STUDIED

Type 1: Pressure-Sensitive, Air-Balanced Valve ("P.B.R.").—The first of the New Army Air Force models, the pneumatic balance resuscitator, hereinafter referred to as type 1 (fig. 1C) has been described and studied previously.[9] In the present study further observations have been made for comparison with other respirators. Type 1 is based primarily on pressure characteristics for actuating the pneumatic balance alternating mechanism. This mechanism automatically converts continuous positive pressure supplied by a pressure tank with a pressure-regulating valve into intermittent positive pressure. Inflation of the lungs occurs under positive pressure transmitted through a mask to the lungs, and after reversal passive deflation takes place almost to atmospheric pressure aided by the elasticity of the lungs and thoracic structures. The maximal pressure in the face mask is approximately 75 per cent of the continuous positive pressure or line pressure delivered by the regulating valve on the pressure tank, while the minimal pressure is about 10 per cent.[8] The Army Air Force's pressure-demand regulator, which supplies oxygen at atmospheric pressure during inspiration or maintains a continuous positive pressure adjustable up to 30 cm. of water by means of a regulator dial (fig. 2), provided a convenient means for maintaining a constant line pressure. The complete respirator unit can be assembled as a small, compact, portable outfit with a small oxygen cylinder, as shown in figure 2. The aluminum model respirator has been found simple to use, easy to maintain in operation and serviceable for long periods of time without special care.[9] A model made of plastic material was found to be unsatisfactory due to (1) warping of the disk supporting the rubber membranes and valve seat, resulting in a failure to cycle properly, and (2) the danger of breaking the fragile outside wall of the plastic case. All variables except line pressure regu-

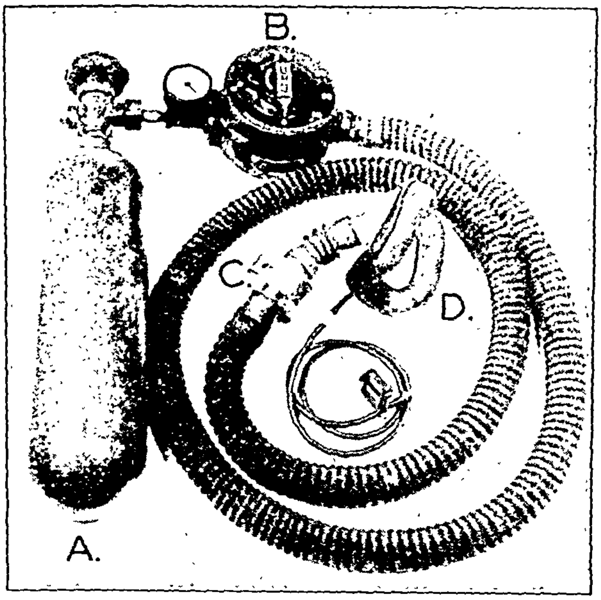

Fig. 2.—Small portable respirator outfit: *A*, high pressure oxygen cylinder; *B*, Bendix pressure demand regulator; *C*, type 1 respirator, and *D*, experimental face mask.

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[10] Birnbaum, G. L., and Thompson, S. A.: The Mechanism of Asphyxial Resuscitation, Surg., Gynec. & Obst. **75**: 79 (July) 1942.

[11] (*a*) Volpitto, P. P.; Woodbury, R. A., and Abreu, B. E.: Influence of Different Forms of Mechanical Artificial Respiration, J. A. M. A. **126**: 1066 (Dec. 23) 1944. (*b*) Schwerma, H., and Ivy, A. C.: Safety of Modern Alternating Positive and Negative Pressure Resuscitators, ibid. **129**: 1256 (Dec. 29) 1945.

[12] Orth, O. S.; Wilhelm, R. L., and Waters, R. M.: The Question of Pulmonary Damage with Artificial Respiration, J. Thoracic Surg. **14**: 220 (June) 1945. Schwerma and Ivy.[11b]

[13] (*a*) Cournand, A., and Ranges, H. A.: Catheterization of the Right Auricle in Man, Proc. Soc. Exper. Biol. & Med. **46**: 462 (March) 1941. (*b*) Cournand, A.; Riley, R. L.; Breed, E. S.; Baldwin, E. deF., and Richards, D. W., Jr.: Measurement of Cardiac Output in Man Using the Technique of Catheterization of the Right Auricle or Ventricle, J. Clin. Investigation **24**: 106 (Jan.) 1945. (*c*) Cournand, A.: Measurement of the Cardiac Output in Man Using the Right Heart Catheterization, Federation Proc. **4**: 207 (June) 1945. Cournand, A.; Lauson, H. D.; Bloomfield, R. A.; Breed, E. S., and Baldwin E. deF.: Recording of Right Heart Pressures in Man, Proc. Soc. Exper. Biol. & Med. **55**: 34 (Jan.) 1944.

lation are built in the device as fixed adjustments. There are no springs. Two rubber diaphragms constitute the only moving parts. Mask leaks greater than 10 per cent prevent proper cycling. The mask pressure curve obtained is symmetric with a constant upward slope during inspiration and constant downward slope during expiration (see fig. 3, II *A*). Inspiratory time is approximately equal to expiratory time.

Type 2: Pressure-Sensitive, Spring-Loaded Valve.—A small compact experimental automatic intermittent positive pressure respirator with a mechanism similar to that of type 5 without a Venturi device was tested. All adjustments are fixed on this model except frequency of alternation. The breathing pattern and mask pressure curves are similar to those of type 1 (fig. 3, II *B*). The maximal peak pressure on the model used was 15.1 mm. of mercury and the minimal was 2.2 mm. of mercury. In general the observations on this model were the same as for type 1. The discussion of the influence of type 1 on the respiration and circulation is also applicable for type 2 (for a comparable line pressure setting giving the fixed peak pressure of the latter).

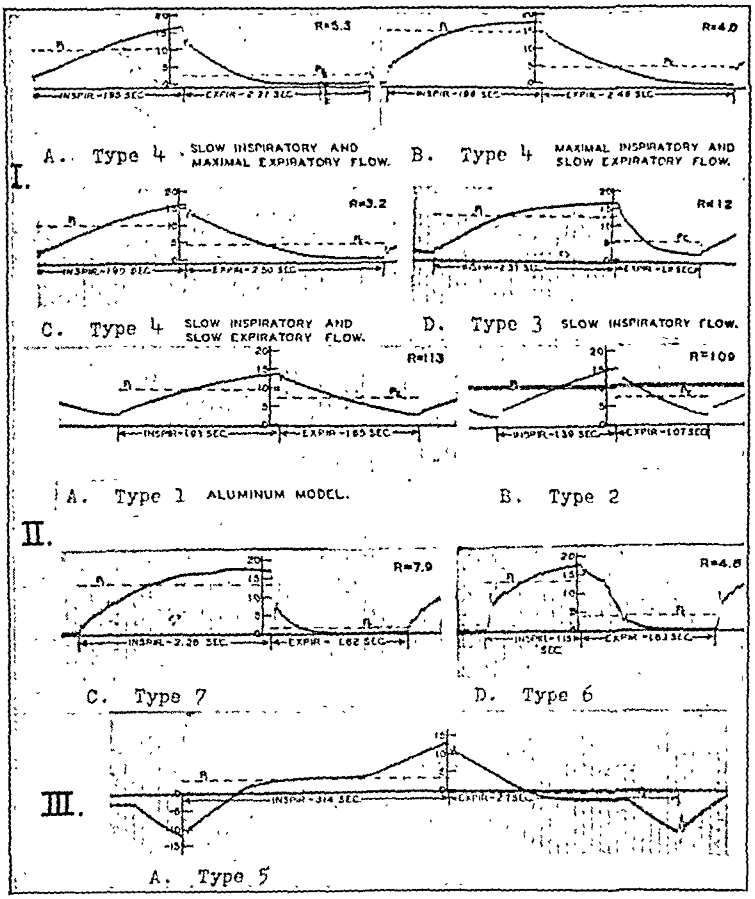

Fig. 3.—Various types of mask pressure curves produced by respirators (electric recording): P_I, inspiratory mean mask pressure; P_E, expiratory mean mask pressure. All pressures are recorded in millimeters of mercury.

Type 3: Flow-Sensitive, "Aviation Model."—The second new type developed by the Army Air Corps is shown in fig. 1 *B*[14] and hereinafter referred to as type 3. The principle of operation for this type is based primarily on flow characteristics for actuating the cycling mechanism. This model was designed for use with a compensated pressure valve used in the Army Air Forces A 13 and A 15 pressure demand oxygen masks. Expiration occurs more rapidly than with type 1, and the flow capacity is greater. The respirator mechanism reverses when the flow of gas through the cycling vane completely stops, a feature which requires that the mask fit on the face without leaks. The minimal pressure on expiration is 2.5 cm. of water and is unrelated to line pressure, while the maximal pressure is approximately the same as the line pressure. The flow sensitivity characteristic of the cycling mechanism is in contrast to type 1, which is primarily pressure sensitive. The mask pressure curve of type 3 is asymmetric, showing a gradual increase in pressure during inspiration and a sudden drop in pressure at the beginning of expiration, with the rest of the curve being concave upward until it levels off at a pressure of 2.5 cm. of water (fig. 3, I *D*). Inspiratory time usually exceeds expiratory time, but the ratio of inspiratory to expiratory time, the cycling rate and the ventilation can be varied widely.

Type 4: Flow-Sensitive, "Research Model"—A third type, newly developed by the Army Air Corps (fig. 1A),[18] is herinafter referred to as type 4. This instrument was designed to permit a study of more variables involved in intermittent pressure breathing than was possible with type 3. With type 4 the following can be varied separately or in various combinations: (*a*) line pressure, (*b*) inspiratory cycling rate, (*c*) expiratory cycling rate, (*d*) inspiratory flow rate, (*e*) expiratory flow rate and (*f*) expiratory pressure. Type 4 works automatically, and its characteristic alterations are determined by flow-time relationship provided by a separate cycling piston in the mechanism. It is stated that the cycling of the respirator is more positive than with type 3. Large mask leaks are tolerated without interfering with the cycling, due to the enclosure in the mechanism of a separate flow circuit acting on the cycling piston. (For a more detailed description consult article by Motley and others.[15] Type 4 does not require a Linde compensated pressure valve and may be used with any pressure face-mask or anesthesia-mask with an inflatable cuff. The mask pressure curve of type 4 is somewhat similar to that of type 3, characterized by the rapid initial drop in pressure at the beginning of expiration that progressively decreases to atmospheric. The variability in the type of tracing that can be obtained is much greater than with type 3 (fig. 4.; 1A, B and C). A slow inspiratory and maximal expiratory flow rate-setting produces a mask pres-

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14. Carlson, L. D.: Design of an Intermittent Pressure Valve Obtained from V. Ray Bennett Through the University of Southern California, Memorandum Report, TSEAL 3-660-49-M, AAF Headquarters ATSC, Engineering Division Aero-Medical Laboratory, Wright Field, July 12, 1945.

15. Motley, H. L.; Cournand, A.; Werko, L.; Himmelstein, A.; Dresdale, D.; Johnson R.; Lester, M.; Spierto, B., and Richards, D. W., Jr.: Physiological and Clinical Studies of Intermittent Pressure Respirators and Manual Methods for Producing Artificial Respiration in Man; Memorandum Report, TSEAA 696-79-F, AAF Headquarters A. M. C. Engineering Division,, Aero-Medical Laboratory, Wright Field, Sept. 6, 1946.

sure tracing that has a gradual increasing pressure until a peak is reached, where cycling occurs and the pressure then drops rapidly to atmospheric (fig. 3, I *A*). The aforementioned respirator setting for flow rates results in maximal peak pressures with the lowest mean mask pressure for the entire cycle (see fig. 3, I *A*, *B* and *C*). Adjusting the expiratory flow rate to minimal instead of maximal as in the preceding combination results in a type 1 curve (fig. 3, I *C*). The transmission of line pressure in type 4 as peak mask pressure varies with the rate of inspiratory flow, approaching 100 per cent on a maximal inspiratory flow setting. When the inspiratory time tends to be longer than expiratory time, an unnecessarily high mean mask pressure for the entire cycle results.

Type 5: "Suck and Blow."—Type 5,[7] used as an example of the "suck-and-blow" type, has a negative pressure at the beginning of inspiration, which gradually becomes positive up to a certain peak pressure where reversal occurs. During expiration the pressure decreases gradually back to the starting point (fig. 3, III *A*); there are no variables to adjust in this model, as inspiration stops at a fixed positive mask pressure (plus 13.5 mm. of mercury) and expiration at a fixed negative pressure (minus 11.1 mm. of mercury). The valves are spring-loaded, and a Venturi device which operates only during expiration provides the suction. With the model used, 37 per cent of the expiratory volume was added by use of the Venturi device. Inspiratory time is longer than expiratory time, and the cycling rate (i. e., frequency per minute) is slower than on the other respirators

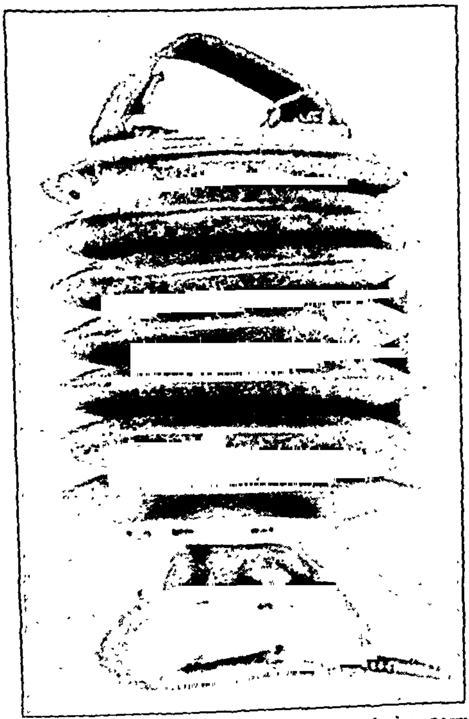

Fig. 4.—Type 7, hand-operated, fast: safety device permits faster escape of air than in type 6.

Type 6: Hand-Operated, Slow.—Type 6[4] is equipped with a safety valve which opens when the positive pressure reaches 17.5 mm. of mercury on the model used (fig. 3, II *D*). Positive pressure is produced by compressing a bellows, which builds up the pressure rapidly to a peak. When the valve opens expiration takes place rapidly and the mask pressure drops to atmospheric. Inspiratory and expiratory time may be varied by the operator. The maximal volume change for one stroke on the bellows measured 1,500 cc. The sliding valve arrangement of type 6 is rather awkward, as inexperienced operators may prevent effective ventilation with the device by blocking the valve by their hand.

Type 7: Hand-Operated, Fast.—Another model, type 7 (fig. 4), a bellows type, hand-operated respirator somewhat similar to type 6 was also studied. This model has also a safety valve that opens when the positive pressure reaches 17.5 mm. of mercury. The tracing of type 7 (fig. 3, II *C*) shows a gradually increasing mask pressure and then a rapid drop to atmospheric after expiration starts. The expiratory pressure drops to atmospheric more rapidly on type 7 than on type 6 (fig. 3, II *C* and *D*). The maximal volume change for one stroke on the bellows measured 2,000 cc. The bellows and valve operation on type 7 was smoother and more foolproof than that on type 6. Inspiratory and expiratory time may be varied by the operator.

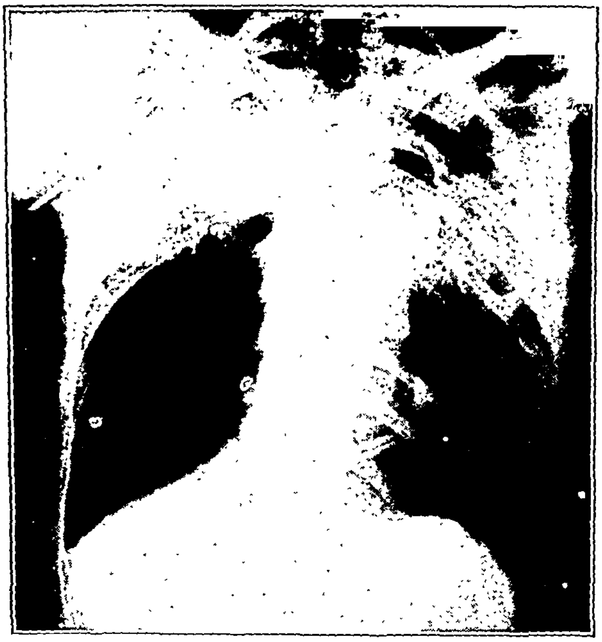

Fig. 5.—Cardiac catheter with the tip in the right ventricle.

METHOD OF STUDY

Pulmonary ventilation was measured and compared with the various types of respirators, both automatic and manual in both conscious and unconscious subjects, using a Tissot spirometer or a portable recording spirometer. In cases of complete apnea the respirators were compared with manual methods for producing pulmonary ventilation. The position of the apneic subject was studied with particular reference to respiratory resistance and the influence on the resulting ventilation.

Respiratory gas exchange was determined by analysis on the Haldane apparatus for carbon dioxide and oxygen content of expired air collected in a spirometer. Also, samples of arterial blood from the brachial or femoral artery were analyzed for oxygen content and capacity and carbon dioxide content on the Van Slyke-Neill apparatus. The p_H was determined directly by use of a glass electrode; the oxygen saturation and pCO_2 (carbon dioxide concentration expressed in terms of pressure) were calculated. In 26 cases a total of one hundred and two simultaneous samples of blood were obtained from the artery through an indwelling needle and from the right ventricle by means of a cardiac catheter introduced through the median basilic vein into the right ventricle (fig. 5), using a technic which has been described and discussed elsewhere.[16] The cardiac output was calculated by applying the Fick formula, using the data obtained from the samples of expired air, of mixed venous blood from the right ventricle and of arterial blood all collected simultaneously:

$$B = \frac{C}{D}$$

where B = cardiac output in liters per minute,
C = oxygen intake in cubic centimeters per minute and
D = difference in oxygen content between arterial and venous blood, in terms of cubic centimeters of oxygen per liter of blood.

(Example: Oxygen intake 200 cc. per minute with an oxygen arteriovenous difference of 40 cc. per liter of blood. Cardiac output = 5 liters per minute.)

Several measurements of cardiac output were obtained at intervals over a period of two to three hours. The subject had been maintained in a fasting state for the preceding sixteen hours. After introduction of the cardiac catheter and intra-arterial needle, a thirty minute rest period with the patient lying supine was used before the first measurement was taken while breathing air at ambient (prevailing atmospheric) pressure. The second cardiac output measurement was taken after ten to twenty minutes on a respirator, followed by a third measurement at ambient pressure in ten to twenty minutes. A fourth measurement was generally taken using either another type of respirator or the same respirator on a different line pressure. In a few cases a fifth measurement was taken either with another type of respirator or during spontaneous breathing. The patients were unanesthetized except for a small amount of procaine hydrochloride used in the skin where the needle and catheter were introduced.

Pressure recordings were obtained simultaneously from the brachial or femoral artery, the right ventricle, the mask pressure and, in 4 subjects having a therapeutic pneumothorax, from the pleural space. The Hamilton manometer for multiple pressure recordings[17] or the Clark pressure pick-up capsule with electrical amplification and recording were used.[18] Tracings were obtained from the same subject in three instances with both the Hamilton and the electrical methods of recording, separately and simultaneously. The pressures measured by the two systems checked closely. A simultaneous electrocardiogram was also obtained with the aforesaid recordings. The zero reference plane for cardiac pressure was taken 5 cm. below the angle of Louis, while the reference plane for arterial pressure was the level of the artery used. Systolic and diastolic pressures were calculated from the calibration curves and mean pressure by planimetric integration of the area under the curve for each pressure tracing.

A simulated breathing device was used to test the mechanical features of the various respirators. This set-up consisted of a G 1 low pressure oxygen cylinder (internal volume 2,100 cubic inches, 34,419 cc.) with a 500 cc. special type mask breathing bag connected on one end. The tidal volume approximates that of man, and the device provides both the distensibility and retractability factors present in the lungs.

MATERIAL FOR STUDY

The cases studied in this paper may be divided into four main groups, (1) essentially normal trained volunteers, (2) unanesthetized conscious subjects studied by cardiac catheterization, (3) patients in deep coma and (4) patients in complete apnea. The observations and measurements for each group are given in table 2.

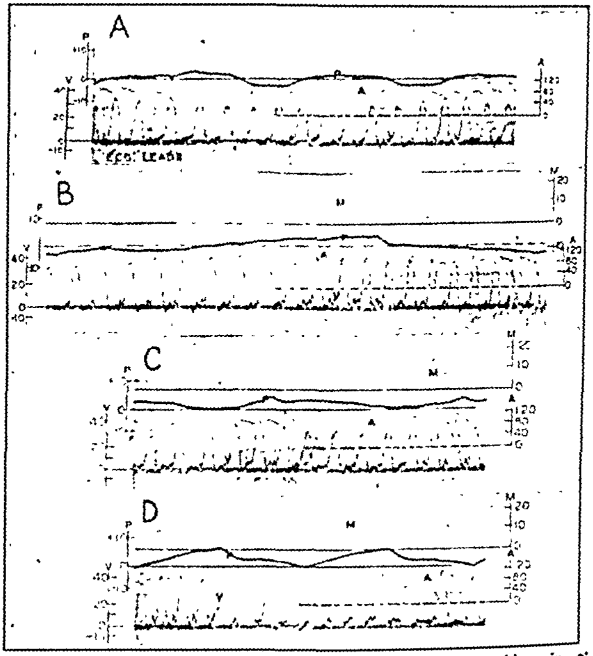

Fig. 6.—Comparison of spontaneous and respirator breathing in a subject with essentially normal circulation: *A*, pressure tracing during spontaneous (ambient) breathing: f [illegible] pleura, brachial artery and right ventricle; *B*, press [illegible] with type 5: from above downward—mask, [illegible] right ventricle; *C*, pressure tracings while [illegible] order as in *B*; *D*, pressure tracings while breathing with type 4, same order as in *B*. On the tracings: V, right ventricle; A, brachial artery; P, pleura; M, mask; all pressures in millimeters of mercury.

RESULTS

A. Influence of the Various Respirators on Ventilation and Gas Exchange.—1. Comparison of Mask Pressure Curves Obtained with the Simulated Breathing Apparatus and in Conscious Subjects: Using the simulated breathing device previously described, the mask pressure curves were studied using the automatic respirators. These curves, illustrated in fig. 3, are identical to curves obtained on well relaxed subjects.

Table 2.—*Material for Study and Observations Made*

Type of Case		No. of Subjects	Type of Observation
Normal trained volunteers..		10	Pulmonary ventilation; air and blood gas exchange
Conscious subjects..........		26	Pleural pressure (4 cases); pulmonary ventilation; air and blood gas exchange; cardiac output; intracardiac and peripheral artery blood pressure recordings; mask pressure
(a) Essentially normal circulation.........	17		
(b) Arteriosclerotic heart disease.......	7		
(c) Shock from hemorrhage..............	2		
Deep coma....................		22	Pulmonary ventilation; air and blood gas exchange; clinical observations
Complete apnea............		21	Pulmonary ventilation; imposed frequency pressures required; influence of position

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[16] (a) Cournand, A.; Riley, R. L.; Bradley, S. E.; Breed, E. S.; Noble, R. P.; Lauson, H. D.; Gregersen, M. I., and Richards, D. W., Jr.: Studies on the Circulation in Clinical Shock, Surgery **13:** 964 (June) 1943. (b) Cournand, A.; Bloomfield, R. A., Lauson, H. D.: Double Lumen Catheter for Intravenous and Intra-Cardiac Blood Sampling and Pressure Recording, Proc. Soc. Exper. Biol. & Med. **60:** 73 (Oct.) 1945. (c) Cournand, Riley, Breed, Baldwin and Richards.[13b]

[17] Richards, D. W., Jr., and Cournand, A.: Final Report of Work Under Contract OEMcmr 107, from March 1, 1942 to Nov. 30, 1945.

[18] Motley, H. L.; Cournand, A.; Werko, L.; Dresdale, D.; Himmelstein, A., and Richards, D. W., Jr.: Intravascular and Intracardiac Pressure Recording in Man: An Electrical Apparatus Compared with the Hamilton Manometer, Proc. Soc. Exper. Biol. & Med. **64:** 241 (Feb.) 1947.

and represent comparable ventilation volumes. In unrelaxed subjects deviations from the preceding type of curves frequently occurred. Failure of the inspiratory part of the curve to rise early in inspiration has been observed with all the automatic intermittent positive pressure respirators. This was due to a superimposed inspiratory effort on the part of the subject. The negative phase of the curve obtained with the type 5 respirator was often reduced in length and depth as the result of positive efforts by the patient to terminate the suction phase. Type 1 and also types 3 and 4 tended to follow the slightest breathing effort of conscious subjects, but with types 2 and 5 the subject had to follow the respirators to get proper ventilation.

2. Ventilation and Gas Exchange in Different Types of Subjects: (*a*) Conscious: Data from 47 experiments concerning the effect of the automatic respirators on ventilation and gas exchange in conscious subjects systematically studied, including cardiac catheterization, are given in table 3. The increase in pulmonary ventilation varied from 23.3 per cent with type 1 to 105 per cent with type 4. The ventilation rise was due to an increase in tidal volume, for the respiration rate was decreased from 21.4 per cent with type 4 to 56.6 per cent with type 5. In general there was a slight increase in the percentage of saturation of oxygen in the arterial blood (2 to 3 per cent, table 3). When the subjects were using the respirators with compressed air, the carbon dioxide content was decreased slightly with all the automatic respirators, varying from minus 0.7 volumes per cent with type 1 to minus 4.2 volume per cent with type 3. The p_H increased from 0.05 units with type 1 to 0.12 units with type 3, and accordingly the calculated pCO_2 decreased by 3.1 and 12.6 mm. of mercury respectively. With the exception of type 4, there was a good correlation between the degree of hyperventilation caused by the various respirators and the extent of pCO_2 changes. This may have been due in type 4 to the greater dead space in the hose line connection of the mask to the respirator, which resulted in greater rebreathing than on the other models.

TABLE 3.—*Respirators Using Compressed Air*

Comparison of effects on pulmonary ventilation and the CO_2 content, pCO_2 and p_H of arterial blood

	Respirator Type			
	1: Pressure-Sensitive	3: Flow-Sensitive "Aviation Model"	4: Flow-Sensitive "Research Model"	5: "Suck and Blow"
Number of experiments	22	8	11	6
Mean mask pressure, Mm. Hg	+7.2	+9.8	+6.3	+3.0
Respiration rate				
Per minute	14.2	14 3	15.2	8.3
Per cent change *	—33 4	—23.0	—21.4	—56.6
Pulmonary ventilation				
Liters per minute	10.6	12.8	15 3	11.0
Per cent change *	+23.3	+67.1	+105.0	+47.0
Arterial blood				
O_2 saturation				
Per cent	96.5	98.7	93.4	96.7
Per cent change *	+2.7	+3.4	+2.3	+2.8
CO_2 content				
Volume per cent	47.1	46.9	47.6	32.5
Change in volume per cent *	—0.7	—4.2	—1.9	—2.5
pCO_2				
Mm. Hg	34.2	28.1	30.2	27.9
Change in mm. Hg *	—3.1	—12.6	—5.9	—6.3
p_H				
p_H	7.47	7.55	7.50	7.51
Change in p_H units *	+0.05	-0.12	+0.07	+0.07

* With respect to ambient (spontaneous breathing at atmospheric pressure).

Changes in blood gases and p_H observed after the respirators were in use for several hours were of the same magnitude as the changes observed after ten to fifteen minutes. The respiratory alkalosis observed was of little clinical significance. Even in the patients using type 3, where the changes were most pronounced (pCO_2 25.2 mm. of mercury, p_H 7.58) no manifestation of tetany was observed. Observations after sixty minutes[6] at a 25,000 feet (7,620 meters) simulated altitude with subjects hyperventilating showed still lower pCO_2 and higher p_H without any evidence of tetany.

Observations on pulmonary ventilation and gas exchange in 10 essentially normal trained volunteers were similar to the data reported on the catheterized group in table 3.

(*b*) Deep coma: The automatic respirators were used on 22 patients in deep coma with respiratory difficulties. The diagnoses were as follows: 8 cerebrovascular accidents; 3 cardiac disease in terminal failure; 2 ethyl alcohol poisoning; 2 carbon monoxide poisoning; 2 barbiturate poisoning; 1 methyl alcohol poisoning; 1 immersion; 1 heat exhaustion and epilepsy; 1 irreversible hemorrhagic shock, and 1 pneumonia.

The automatic respirators produced adequate ventilation (5 to 18 liters per minute, average 10.5 liters per minute) in all types of unconscious subjects without adverse effects from hyperventilation. The following illustrative data were obtained in an instance of cerebrovascular accident, the patient in coma with Cheyne-Stokes breathing: On ambient air the ventilation varied from 8 to 40 liters per minute and in the arterial blood the pCO_2 was 34.9 mm. of mercury, the p_H 7.53 and the oxygen saturation 81 per cent. With type 1 on compressed air the breathing was regular with a ventilation rate of 16 liters per minute, pCO_2 37.8 mm. of mercury, p_H 7.47 and the oxygen saturation 93 per cent in the arterial blood. With type 1 on 100 per cent oxygen the breathing was regular with a ventilation rate of 17.5 liters per minute, pCO_2 36.0 mm. of mercury, p_H 7.49 and the oxygen saturation 102 per cent. The line pressure used above was 21 cm. of water (15.4 mm. of mercury for type 1 on both compressed air and 100 per cent oxygen. On ambient 100 per cent oxygen, following the use of type 1, the breathing remained regular with a ventilation of 14 liters per minute, pCO_2 38.5 mm. of mercury, p_H 7.46 and the oxygen saturation 105 per cent in the arterial blood. When the patient was changed to air, the Cheyne-Stokes breathing reappeared in two minutes.

In patients with a gasping type of inspiration there was a very high instantaneous flow rate of short duration (0.4 to 0.6 second) with maximal peak flows during this interval up to 80 to 120 liters per minute.[15] Type 4 flow-sensitive "Research Model" was the only respirator with sufficient instantaneous flow capacity to eliminate the negative phase at the beginning of inspiration due to additional inspiratory effort.

Usually the respirators were used with a mask, but in 2 cases type 1 and type 4 were used attached to an endotracheal tube. Lower regulator line pressures give adequate ventilation with an endotracheal tube as compared to the line pressures required when using the mask.

Type 1, Pressure-sensitive pneumatic balance resuscitator, was the only automatic respirator considered safe enough in the mechanical operation and sufficiently innocuous in its physiologic effects to be left with a minimum of ward supervision on patients in coma for extended periods of time, one to two days or longer if necessary. Type 1 has been used up to seventy-nine hours continuously in the treatment of a patient with barbiturate poisoning without demonstrable ill effects, either clinical or pathologic.

(c) Complete apnea: It has been pointed out that the fresh cadaver much more closely simulates the completely apneic living subject than does the normal conscious person.[19] Therefore, observations have been made on 18 subjects at or shortly after the time of death, in addition to 3 living subjects with complete apnea. Adequate pulmonary ventilation was obtained with all the respirators provided the subject was in the proper position, except in 1 case. The subject in the aforementioned case had bulbar palsy with dysphagia and had died as the result of a complete blocking of the upper trachea with solid particles of food. The onset of rigor mortis has been the factor limiting the length of time that type 1 will ventilate the lungs after death.[9] The preceding factor also holds for all the other types, both automatic and hand-operated respirators. The best position of the body has been discussed for type 1.[9] This body position consists in hyperextension of the head on the cervical vertebrae (push the head back) with support of the lower chin and a slight Trendelenburg position. This position was found to be the best for all respirators, both automatic and hand-operated, and was in most instances the determining factor between success or failure for proper performance of the automatic respirators in apneic subjects.

The frequency of alternation and the pulmonary ventilation produced by the various automatic respirators are shown in table 4. Line pressures used to ventilate the lungs averaged 15.8 mm. of mercury for type 1, 13.6 for type 3, and 12.0 for type 4. Types 2 and 5 have fixed line pressures. The line pressure with type 1 had to be increased approximately 25 per cent over those of types 3 and 4 in order to get the same peak mask pressure, due to less transmission of line pressure in type 1. All the automatic respirators which were tested gave adequate pulmonary ventilation with a mask if the line pressure was 11.8 mm. of mercury (16 cm. of water) or higher. The values for types 3 and 4 were obtained with the adjustments set for medium inspiratory flow and alternating frequency. By increasing the inspiratory flow and the alternating frequency on types 3 and 4 the total pulmonary ventilation could easily be increased on each of the different line pressures used. Types 3 and 4 were slightly more capable of overcoming breathing resistance in the upper part of the pharynx and maintaining proper alternation frequency than the others. In order to prevent types 3 and 4 from ventilating the lungs a complete blockage of the airway must be present, as the design of the apparatus is based on flow sensitivity. Type 1 tolerates airway obstruction slightly better than type 5. Type 2 responds in the same manner as type 1.

Both manual respirators (types 6 and 7) provided adequate ventilation in the apneic subjects tested. The operator controlled the frequency of alternation. The respiratory excursions produced by the manual respirators were preponderantly diaphragmatic in character; this was also true for the automatic respirators. Although the exact ventilation volume was not measured with the manual models, the amount was considered adequate as judged by the abdominal excursions and breath sounds, and these correspond with observations made on the same subjects with the automatic respirators in cases in which an adequate ventilation volume was measured.

In contrast to the adequate pulmonary ventilation secured with the various respirators, manual methods used on the same test subject were grossly inadequate. Observations were made on 4 suitable test subjects (cadavers), selected because they were known to have had clear lungs just prior to death. With the best positions of the body in the first case, the average tidal volume obtained with the Schaefer method was only 78 cc., and when the best position was not used no ventilation resulted. Type 1 easily ventilated this subject at a rate of 6 to 10 liters per minute, depending on the line pressure. In the second case with the best body position an average tidal volume of 50 cc. was secured with the Schaefer method. When the Schaefer method was used without hyperextending the head on the neck and supporting the lower jaw, ventilation did not result.

The two hand-operated respirators, types 6 and 7, ventilated the second subject adequately and with ease; respiratory movements were pronounced, and breath sounds were normal in character. All the automatic respirators ventilated this second subject adequately and with ease. In the third case with the Schaefer method an average tidal volume of 140 cc. was secured with the best position, and without hyperextension of the neck but with support of the lower jaw the tidal volume was reduced to 90 cc. Without hyperextension of the head and without supporting the lower jaw no ventilation resulted. This subject was easily ventilated with the automatic respirators at a rate of 6 to 10 liters per minute. In the fourth case the Schaefer method failed to ventilate the lungs even after the best position was secured. The Eve (rocking) method gave 50 to 60 cc. per tidal volume with the best position of the head. If the head were not held properly no ventilation could be measured with the Eve method. The automatic respirators ventilated the fourth subject easily at a rate of 5 to 11 liters per minute depending on the setting of the various respirators and the line pressure used. Tests made with and without an airway tube in these 4 cases revealed no difference in the pulmonary ventilation.

In summary, in 4 apneic subjects even though great care was taken in testing the manual methods with the proper position of the body, head and lower jaw pulmonary ventilation was grossly inadequate, while adequate pulmonary ventilation was easily secured with the respirators; similar observations have previously been reported on comparing type 1 to the manual squeeze procedure as commonly carried out on a hospital bed.[9] Other studies have been reported on the inadequacy of the Schaefer method in the type of subject in need of artificial respiration.[19] The proper position for the head, lower chin and body, previously described,[9] was found to be the most advantageous for administering artificial respiration in apneic subjects either by respirator or manual methods.

Type 1 was used for ten hours to maintain artificial respiration in 1 case of methyl alcohol poisoning with complete apnea. With a line pressure of 21 cm. of water (15.4 mm. of mercury) the pulmonary ventilation averaged 6 to 8 liters per minute. At intervals type 1 was stopped, but no spontaneous respirations occurred. The mean blood pressure was low, maintained at 25 to 30 mm. of mercury in the femoral artery during the entire period.[7] When sodium bicarbonate was given to correct the extremely low arterial blood p_H of 6.81, the

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19. Comroe, J. H., Jr., and Dripps, R. D.: Artificial Respiration, J. A. M. A. **130:** 381 (Feb. 16) 1946. Bruns, O.: Ueber Wiederbelebung Durch Kunstliche Atmung, Klin. Wchnschr *6:* 1548 (Aug. 13) 1927. Cordier, D. G.: Methods of Artificial Respiration, Brit. M. J. **2:** 381 (Sept. 25) 1943. Macintosh, R. R., and Mushin, W. W.: Pulmonary Exchange During Artificial Respiration, ibid. **1:** 908 (June 15) 1946.

arterial pulse and blood pressure improved slightly with type 1 breathing as the p_H was raised to 7.30. Although the subject was decidedly cyanotic before using the respirator, shortly after starting type 1 the arterial blood was 100 per cent saturated. In this subject when type 1 was changed from 100 per cent oxygen to compressed air on the same line pressure the pulse became weak and the heart sounds faint. When 100 per cent oxygen was resumed with type 1 the improvement was immediate. During a routine lumbar puncture for examination of the cerebrospinal fluid the pressure was observed to fluctuate with the respirator cycling, with peak increases that represented 25 per cent of the peak mask pressure (16 cm. of water) on type 1. After ten hours the heart gradually failed and finally stopped. There was no urinary output during the ten hour period. Postmortem examination revealed extensive injury to the liver and kidneys as a result of the methyl alcohol poisoning.

TABLE 4.—*Alternation Frequency and Pulmonary Ventilation Produced with Various Respirators in Eighteen Patients with Complete Apnea*

Average Line Pressure Cm. H₂O	Average Line Pressure Mm. Hg	Respirator Type	Number of Tests	Average Alternation Frequency per Min.	Average Pulmonary Ventilation L./Min.
30	22.0	1: Pressure-sensitive	4	20	9.9
26	19.1	1: Pressure-sensitive	6	20	9.5
26	19.1	3: Flow-sensitive	3	27	10.2
21	15.4	1: Pressure-sensitive	9	22	9.2
21	15.4	3: Flow-sensitive	7	21	7.7
21	15.4	4: Flow-sensitive	3	11	10.2
16	11.8	1: Pressure-sensitive	8	35	7.9
16	11.8	3: Flow-sensitive	6	20	5.6
16	11.8	4: Flow-sensitive	4	24	8.0
12	8.8	1: Pressure-sensitive	1	60	9.0
12	8.8	3: Flow-sensitive	4	21	3.3
12	8.8	4: Flow-sensitive	3	23	6.3
		Average: All Line Pressures			
21.6	15.8	1: Pressure-sensitive	28	26	9.0
18.5	13.6	3: Flow-sensitive	20	22	9.6
16.3	12.0	4: Flow-sensitive	13	21	8.1
....	.....	5: "Suck and blow"	4	12	8.2*

* Corrected volume (amount added by Venturi suction device has been deducted).

Type 1 was used on 1 case of immersion, in which complete apnea developed shortly after the patient was brought into the hospital. There was pronounced cyanosis, a mottled purplish discoloration of the skin, white frothy fluid exuding from the mouth and acute pulmonary edema. The rectal temperature was 95 F. The condition was the result of immersion in sea water (East River, near Bellevue Hospital) while the patient was in a drunken stupor. Type 1 was used on a line pressure of 21 cm. of water with 100 per cent oxygen, and it maintained adequate ventilation. The cyanosis cleared after ten minutes, but about thirty minutes elapsed before the discoloration of the skin completely disappeared. After sixty minutes on type 1 the chest was clear anteriorly, with only a few moist rales left at the bases of the lungs posteriorly. Semiconsciousness returned after thirty minutes, and use of the type 1 respirator was discontinued after two hours. The patient made an uneventful recovery without contracting bronchopneumonia.

Type 1 was used on 1 adult man with acute anterior poliomyelitis complicated by a complete respiratory paralysis at Willard Parker Hospital, New York. This subject quickly became cyanotic when the Drinker type respirator was stopped, and manual methods applied by experienced operators were inadequate to prevent cyanosis from developing. On a line pressure of 21 cm. of water, adequate pulmonary ventilation was secured as judged by the subjective sensation of the patient, color of the skin and respiratory excursions of the chest and abdomen. Type 1 was used to permit nursing care and physical therapy while the respirator was stopped. Also, the subject was moved with ease from one building to another without discomfort. The face mask (fig. 2) was the most comfortable for this patient. The oxygen was too dry for continued use with type 1 without using a humidifier, as he complained of a dry throat and interference with swallowing. When the subject was changed to the respirator after being on 100 per cent oxygen with type 1 he complained of air hunger for a few minutes, but this sensation rapidly disappeared.

B. *Influence of the Various Respirators on the Circulation.*—In the 26 patients studied by means of cardiac catheterization, the records obtained permitted careful analysis of the effects on the circulation produced by increasing and decreasing mask pressures.

1. Heart Rate: The observations regarding heart rate made in 36 experiments on 24 subjects (17 with essentially normal circulation and 7 with cardiac disease) appear in table 5. The changes in heart rate during inspiration are listed separately and correlated with the corresponding mean mask pressure. Increase in heart rate during the period of increasing pressures was more appreciable than during the period of decreasing pressure with type 1, type 3 and type 4. During the period of increasing pressure with an average mean mask pressure of 9.3 mm. of mercury for the three respirators just mentioned, the average increase in heart rate was approximately 10 per cent; during the period of decreasing pressure, with an average mean mask pressure of 5.1 mm. of mercury, the average increase in heart rate was approximately 4 per cent. With type 4 the change in heart rate was insignificant during the expiratory phase, which is characterized by a rapid drop in pressure approaching zero with a low mean mask pressure. There was no essential change in heart rate during the period of increasing and decreasing pressure while breathing on type 5, as shown in table 5. This was probably related to the low mean mask pressure present during both inspiration and expiration.

TABLE 5.—*Heart Rate and Mean Mask Pressure During Inspiration and Expiration with Various Types of Respirators*

		Inspiration			Expiration		
			Heart Rate			Heart Rate	
Respirator Type	Number of Experiments	Mean Mask Pressure, Mm. Hg	Per Min.	Per Cent Change from Ambient	Mean Mask Pressure, Mm. Hg	Per Min.	Per Cent Change from Ambient
1: Pressure-sensitive	11	6.4	96	+9.0	6.0	90.0	+3.0
3: Flow-sensitive "Aviation Model"	8	12.4	86	+17.0	7.3	79.0	+7.0
4: Flow-sensitive "Research Model"	11.	9.0	89.6	+4.1	1.9	85.5	—0.7
5: "Suck and blow"	6	5.1	84.7	—1.7	0.5	86.5	—0.8

2. Electrocardiogram: Significant electrocardiographic changes on lead 2 were not observed in the 26 subjects during intermittent positive pressure breathing. There was also no change in the time intervals between

the electrical and mechanical events in the right heart, as compared to the records of spontaneous breathing (fig. 6 and 7).

3. Blood Pressure. The influence of intermittent positive pressure on blood pressure was studied on 17 subjects with an essentially normal circulation. The average arterial and right ventricular blood pressures during breathing with the four automatic respirators are given in table 6 with the corresponding mean mask pressures. Records illustrating simultaneous recordings of intra-arterial (femoral or brachial), intraventricular, pleural and mask pressures and electrocardiographic lead 2 are presented in figures 6, 7 and 8.

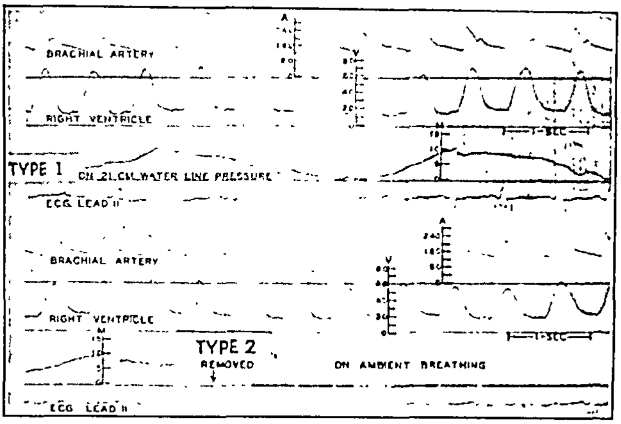

Fig. 7.—Pressure tracing in a case of essential hypertension. Electric recording was used in contrast to multiple simultaneous recordings with Hamilton manometer in previous figures: *A*, brachial artery pressure; *M*, mask pressure; *V*, right ventricle pressure. All pressures in millimeters of mercury on the scale.

Table 6.—*Influence of Various Respirators on Blood Pressure and Peripheral Resistance in Subjects with Essentially Normal Circulation*

	Respirator Type			
	1	3	4	5
Number of experiments	13	7	7	5
Mean mask pressure, mm. Hg	7.7	10.1	8.1	2.6
Arterial blood pressure				
Systolic, mm. Hg	136	137	135	120
Change,* mm. Hg	+6	−3	+4	+9
Diastolic, mm. Hg	82	85	83	76
Change,* mm. Hg	+5	+2	+5	+9
Pulse pressure, mm. Hg	51	52	52	50
Change,* mm. Hg	+1	−5	−1	0
Mean, mm. Hg	100	106	102	95
Change,* mm. Hg	+3	+1	+3	+9
Right ventricular blood pressure				
Systolic, mm. Hg	28	30	33	28
Change,* mm. Hg	+1	+5	+5	0
Diastolic, mm. Hg	5.0	7.9	5.2	4.6
Change,* mm. Hg	+2.6	+6.9	+2.9	+2.2
Pulse pressure, mm. Hg	23.0	22.1	27.8	23.4
Change,* mm. Hg	−1.6	−1.9	+2.1	−2.2
Mean, mm. Hg	12.8	13.8	13.5	11.6
Change,* mm. Hg	+1.1	+5.1	+3.9	+0.8
Peripheral resistance				
$\frac{\text{Dynes—sec.}}{\text{Cm.}^{-5}}$	1,152	1,150	1,430	1,112
Per cent change *	+21.8	+6.3	+13.8	+6.3

* With respect to values obtained during spontaneous breathing: actually, the procedure involved in most cases in sequence: (1) a period of spontaneous breathing; (2) a period of pressure breathing, and (3) a second period of spontaneous breathing. The second period was compared with the average of the first and third periods.

The changes in systolic, diastolic, pulse and mean pressures are of low magnitude with all the automatic respirators, as is seen in table 6. The arterial systolic pressure with type 3 breathing decreased 3 mm. of mercury in contrast to a slight increase with the other respirators; however, the mean mask pressure on the former was the highest. Right ventricle pressures were increased with respect to ambient subjects with type 3 and type 4, while with type 1 and type 5 the changes were minimal. The mean right ventricular pressure was increased from plus 0.8 mm. of mercury on type 5 to plus 3.9 mm. of mercury on type 4, somewhat correlated with the mean mask pressure.

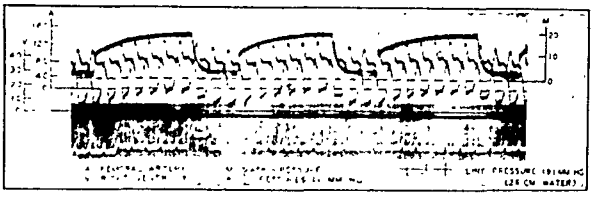

Fig. 8.—Pressure tracings while breathing with the type 3 (intermittent positive pressure) respirator: from above downward—mask, femoral artery and right ventricle.

4. Peripheral Vascular Resistance: The peripheral resistance was increased with all the automatic respirators (table 6). The calculation of peripheral resistance was made according to the formula[16a] generally in use with entries for the mean arterial blood pressure, the end diastolic right heart pressure and the cardiac output.

5. Cardiac Output: The effects of the four automatic respirators on the cardiac output in thirty-three experiments on 17 subjects with essentially normal circulation are presented in table 7. Type 1 with an average mean mask pressure of 7.7 mm. of mercury produced a decrease in cardiac output of 10.8 per cent. This decrease was apparently proportional to the increase in mean mask pressure, as seen in figure 9, which is based on data obtained in thirteen experiments in subjects with essentially normal circulation. With a slightly higher mean mask pressure (8.1 mm. of mercury) the reduction in cardiac output with type 4 averaged only 5.9 per cent. With a mean mask pressure significantly higher, 9.8 mm. of mercury, the reduction in cardiac output with type 3 averaged 12.9 per cent. The mean mask pressure for type 5 was exceedingly low (2.6 mm. of mercury), and there was an insignificant change in cardiac output with respect to the values for natural breathing. An example of the different effect of type 1 and type 4 on the cardiac output in a subject under basal metabolic conditions who was studied repeatedly on the same day is given in table 8.

Table 7.—*Effects of Various Respirators on Breathing Characteristics of Cardiac Output in Subjects with Essentially Normal Circulation*

Respirator Type	Number of Experiments	Mean Mask Pressure, Mm. Hg	Mean Mask Pressure, % of Line Pressure	Frequency of cycles per Min.	Inspiratory Time, Sec.	Expiratory Time, Sec.	Ratio: Inspiratory to Expiratory	% Change in Cardiac Output with Respect to Output During Natural Breathing
1: Pressure-sensitive	13	+7.7	48.1	10.6	3.17	3.66	0.87	−10.8
3: Flow-sensitive	8	+9.8	59.7	14.3	3.08	2.08	1.48	−12.9
4: Flow-sensitive	7	+8.1	54.6	11.6	3.28	2.32	1.46	−5.9
5: "Suck and blow"	5	+2.6	....	6.9	7.51	3.63	2.07	+1.9

In ten experiments on 7 patients with arteriosclerotic heart disease no significant change (—2.0 per cent) in cardiac output was observed as a result of using the respirators on the following line pressures: the average pressure with type 4 in four experiments was 11 mm. of mercury and with type 1 in six experiments, 14.7 mm. of mercury. The resulting mean mask pressures were low—the average with type 4 was 5.3 mm. of mercury and with type 1, 5.6 mm. of mercury.

The changes in cardiac output were insignificant in 2 instances of hemorrhagic shock when type 1 was used with a line pressure of 8.8 mm. of mercury (12 cm. of water).

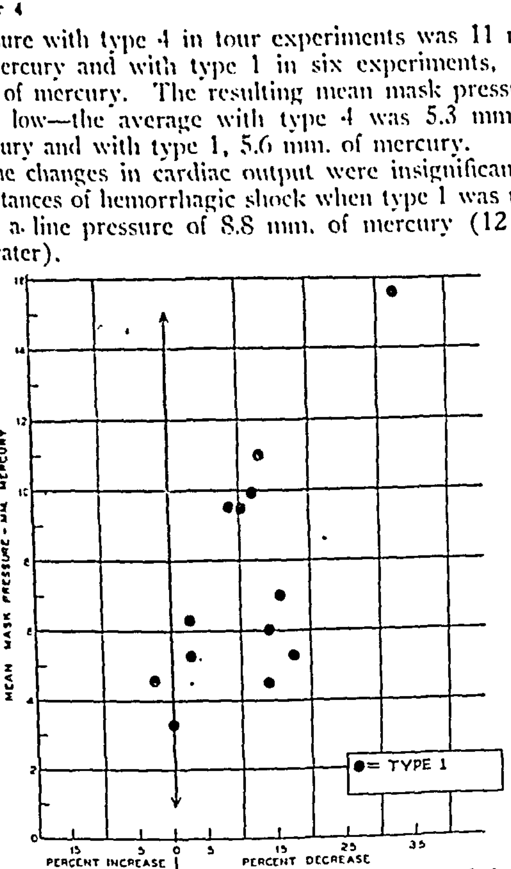

Fig. 9.—Relation between mean mask pressure increase and change in cardiac output from control ambient in patients with essentially normal circulation. Note the proportional decrease as the mean mask pressure increases.

Data were secured in 4 persons having a therapeutic pneumothorax by measuring pleural pressures simultaneously with the mask, right ventricle and arterial pressures. Information was thus obtained concerning the net filling pressure at the end of diastole in the right ventricle in relation to mask and pleural pressure variations. The right ventricular pressure changes were related to pleural rather than to mask pressure changes. In 2 subjects with structural changes in the lungs and in the pleura this relation was clearly demonstrated, as there was a lag of about one second between mask and pleural pressure changes. An analysis was made beat by beat of the heart, measuring simultaneously mask pressure, pleural pressure, right ventricular and arterial systolic and diastolic pressures and the right ventricle net filling pressure.[19] The net filling pressure, obtained by subtracting the simultaneously measured pleural pressure from the end diastolic pressure in the right ventricle, changed generally inversely with the pleural pressure. An increase in the net filling pressure corresponded to a decrease in pleural pressure. Successive decrease and increase in net filling pressure were therefore well in phase with variations in venous return to the right heart, which follow changes in intrathoracic pressure. An increase in the net filling pressure should result, according to Starling's law, in an increase in the output from the right heart, and a decrease should result in a decrease in output. During inspiration in intermittent positive pressure breathing, the increase in pleural pressure during inspiration results in a decrease in the net filling pressure of the right ventricle and therefore in a decreased output from the right heart. During expiration the pleural pressure decreases (rapidly or slowly depending on the type of mask pressure curve produced by the respirator), and this decrease results in an increase in the net filling pressure of the right ventricle, leading to an increase in cardiac output from the right heart.

Table 8.—*Comparison of Breathing Characteristics and Changes in Cardiac Output in One Subject Studied on the Same Day with Both the Type 1 and Type 4 Respirators*

	Respirator Type	
	1	4
Line pressure, mm. Hg	15.4	15.4
Mean mask pressure		
Inspiration, mm. Hg	6.0	10.0
Expiration, mm. Hg	4.5	2.3
Entire cycle, mm. Hg	5.3	6.9
Time		
Inspiratory time, sec.	2.19	2.28
Expiratory time, sec.	2.62	2.27
Ratio inspiratory to expiratory	1.23	1.00
Pulmonary ventilation		
Liter per minute	10.9	19.1
Per cent change from ventilation during natural breathing	+25.3	+120
Cardiac output		
Liter per minute	7.21	9.87
Per cent change from output during natural breathing	—17.5	+3.7

Similar studies on the output of the right heart during normal deep breathing in man[20], have been interpreted as indicating an increase in right ventricle stroke volume during inspiration and a decrease during expiration.

In the 4 patients with pneumothorax the arterial pulse pressure curves were more or less parallel to the pleural pressure curves. In the case of M. W. (fig. 10, table 9), with a very long sustained increase in pleural pressure the arterial pulse pressure increased at first and then rapidly decreased, indicating a reduction in left heart stroke volume after a few beats. This result confirms previous studies made on sustained forceful expiration in man.[20] The latter change may be interpreted as indicating that after a short interval of time the effect of the reduction in right heart stroke volume was transmitted to the left heart, causing a diminution in left heart stroke volume and therefore a reduction in arterial pulse pressure. A similar change is shown in fig. 6*B* with type 5.

Table 9.—*Comparison of Unfavorable (A) and Favorable (B) Time Ratio for Mask Pressure on Cardiac Output with Type 4 Respirator*

	Line Pressure, Cm. Water	Ratio: Inspiration to Expiration	Cardiac Output		Mean Mask Pressure, Mm. Hg	
			L./Min.	Per Cent Decrease from Control Ambient	During Inspiration	During Expiration
A	26	3.9	3.7	39.0	16.8	3.8
B	16	0.9	6.0	1.0	7.9	2.0

The transmission of the negative phase with type 5 ("suck and blow") was very slight in the case of M. W., with a frequency of 14 cycles per minute (fig. 6*B*). The negative pressure did not result in a striking increase in right ventricle net filling pressure, and the lowest filling pressure present corresponds to the lowest

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20. Lauson, H. D.; Bloomfield, R. A., and Cournand, A.: The Influence of Respiration on the Circulation in Man with Special Reference to Pressures in the Right Auricle, Right Ventricle, Femoral Artery and Peripheral Veins, Am. J. Med. 1: 315 (Oct.) 1946.

negative pressure of the mask. Also, the arterial pulse pressure on the same subject (M. W.) was not influenced by variations in mask pressure. No evidence was obtained that negative pressure during part of the cycle increases cardiac output. On the other hand, the "suck and blow" type respirator did not produce adverse effects on the circulation when used for one hour in 2 cases of deep coma. The negative mask pressure was transmitted much less to the pleural pressure than the positive pressure.

In summary, intermittent pressure breathing will result in the following cycle changes due to variations in intrathoracic pressure: (1) during the increasing inspiratory pressure period the venous return to the right heart diminishes; (2) during the phase of diminishing expiratory pressure the reverse takes place, and (3) the more rapid and complete the pressure drop to zero after reversal at the peak pressure, the greater the filling of the right side of the heart during expiration.

The over-all changes in cardiac output will vary with the type of pressure curve. Type 1 produces a symmetric type of curve, and the pressure drops slowly at approximately the same amount per time unit as the increase during inspiration. The time on low pressure during one complete cycle is about the same as the time on high pressure. The changes in cardiac output are more related to the height of the mean mask pressure than to the ratios between inspiration and expiration. In the case of type 4 curve the rapid initial drop of pressure in expiration (fig. 11) allows the deficit occurring during the inspiration to be partly overcome in the first few beats. The complete compensation, however, will be dependent on two factors, (*a*) the duration of the expiratory period with as many heart beats as during inspiration and (*b*) the pressure existing during this time. The expiratory mean mask pressure on type 3 is relatively higher (2.5 cm. of water as a minimum) than on type 4. Hence type 3 occupies a position between type 1 and type 4 with respect to the decrease in cardiac output. In the case of type 4 the rapid drop in pressure and the total low expiratory mean mask pressures favor compensation of the deficit occurring during the inspiratory phase of rising pressures. A high mean mask pressure with type 4 results in large decreases in cardiac output (fig. 10 *A*), but to produce a high mean mask pressure for the entire cycle (12 to 15 mm. of mercury) with type 4, a short expiration time is required, thus not permitting adequate time for compensation to occur.

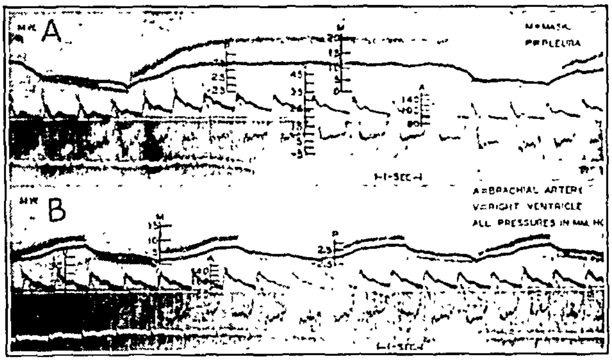

Fig. 10.—Comparison of an unfavorable (*A*) and a favorable (*B*) time ratio for mask pressure on cardiac output with the type 4 respirator (Hamilton manometer recording).

COMMENT

A. *Interpretation of the Mechanism of Action of Intermittent Pressure Breathing on the Circulation.*—It has been shown previously that in normal subjects the stroke volume of the two ventricles is unequal during deep breathing.[20] As the pressure in the thorax increases during expiration, filling of the right side of the heart from the large veins is reduced and the stroke volume diminishes; meanwhile, the output from the left side of the heart increases as a result of increased pulmonary venous return.

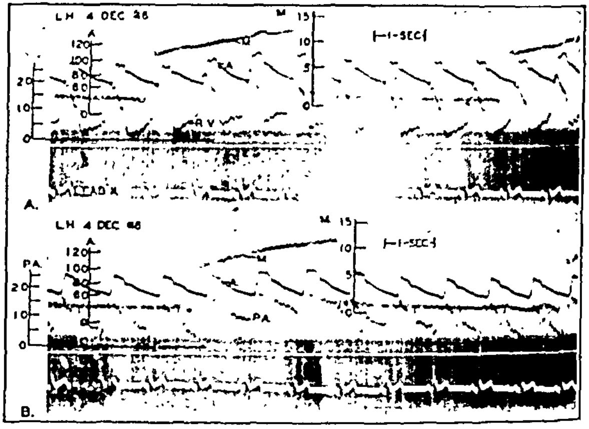

Fig. 11.—Desirable type of mask pressure curves produced by the type 4 respirator; there was no decrease in cardiac output: pressure tracings from above downward—*A*, mask, brachial artery and right ventricle; *B*, mask, brachial artery and pulmonary artery (Hamilton manometer recording).

The present study indicates that the same mechanism operates during intermittent pressure breathing in a reverse fashion and to a greater extent. The phase of rising intrathoracic pressure takes place during inspiration and the phase of decreasing pressure during expiration. The decrease in output from the right side of the heart, during the phase of rising pressure in the mask and in the thorax, is made up during the phase of falling mask pressure. For the left side of the heart the reverse occurs. However, the left side of the heart can only increase its output during inspiration for a short time (three to five beats) by ejection of blood squeezed out of the lungs. More extended increase in output of the left side of the heart will take place only after more blood has been supplied again by the right side of the heart. Thus, the variation in stroke volume of the right ventricle is the important part to consider in relation to sustained changes in cardiac output.

During intermittent pressure breathing the pressure should not only be low during expiration, but this phase of low pressure in the thorax should be of sufficient length. The total expiratory time interval should allow a sufficiently large number of heart beats to take place to compensate for the reduction in output which occurs during the inspiratory period of rising pressure. The type 1 symmetric curve (figs. 6 *C* and 3, 11 *A*) with inspiratory and expiratory time almost equal, affects the cardiac output through the entire cycle. There is positive pressure in the thorax during the whole of the respiratory cycle, which diminishes continuously the venous return of blood to the right side of the heart. The greater the increase in mean mask pressure, the larger the reduction in cardiac output with the type 1 respirator (fig. 9). The type 3 curve has a quick pressure drop on expiration, which permits the right side of the heart early in expiration to make up part of the loss incurred during inspiration, but the compensation is not complete as the pressure does not return to atmospheric and the expiratory time interval is too short. In fig. 8 there are only approximately three heart beats during expiration with type 3 to make up for the decreased output of six heart beats during inspiration.

The type 4 curve also has a quick pressure drop on expiration and thus permits an early compensation. Complete compensation occurs in those subjects using type 4 in whom the expiratory time is long enough and the expiratory pressure is allowed to drop to atmospheric (fig. 11). In patients with short expiratory time intervals the compensation is incomplete (fig. 10 *A*). The decrease in cardiac output on type 5 is insignificant, as this respirator produces a mean mask pressure that is relatively low during the positive phase and only slightly above atmospheric for the entire cycle.

B. *Ideal Type of Respirator Equipment.*—The ideal type of respirator for use on man (producing effective artificial respiration with a minimal disturbance to the circulation) should embody the following characteristics:

1. It should be simple and sturdy in construction and operation, small and compact in size, as in type 1, type 2 and type 7. The respirator apparatus should stand steam sterilization if expiration occurs through part of the device as in type 1. Expiration should not occur through the flow-sensitive respirators with reversing pistons as in type 4.

2. The mask pressure curve should increase gradually during inspiration up to a peak not in excess of approximately 25 cm. of water, and after reversal occurs the pressure drop should decrease rapidly to a final pressure near atmospheric (figs. 11 and 3, I *A* and II *C*). The mean mask pressure during the expiratory period should be as low as possible. There is no apparent advantage of including negative pressure in the cycle.

3. Alternating frequency rates should maintain a respiratory rate between 10 and 20 per minute.

4. The volumes of pulmonary ventilation provided should be on an average from 6 to 10 liters per minute.

5. A regulator line pressure should be provided that takes into account the pressure drop in transmission for the particular type of respirator used and provides peak pressures from 10 to 25 cm. of water (7.4 to 18.4 mm. of mercury).

6. The mask most suitable for use in this study has been one having a wide, inflatable, thin, soft rubber cuff built over a sponge-type cushion base and detachable from a light weight transparent plastic facepiece (fig. 2 *D*). This type of mask has provided the best leakproof fit and the least dead space.

SUMMARY AND CONCLUSION

1. In this study all the automatic respirators tested produced adequate ventilation in all types of subjects, whether conscious, comatose or apneic. The manual respirators also performed satisfactorily on the apneic subjects. The manual methods, such as the Schaefer, were inadequate in providing adequate pulmonary ventilation for any length of time in the apneic subject. (However, any sort of manual artificial respiration should be started immediately and continued until a respirator can be obtained.)

2. In administering artificial respiration in the apneic subjects either by respirator or manual methods, the position of the body that provides the minimal resistance to pulmonary ventilation was found to be: (1) hyperextension of the head on the cervical vertebrae, (2) support of the lower jaw from below and (3) the body flat or in a slight Trendelenburg position without pillows under the head. An airway tube may be used; however, in the present studies with respirators the use of such a tube did not result in a significant change in ventilation rate. An endotracheal tube with an inflatable rubber cuff on the end definitely decreases the resistance to artificial respiration in the apneic subject, and this was the most satisfactory arrangement for using type 1 on apneic subjects for long periods of time. The regulator line pressure may be set much lower (10 to 15 cm. of water) with the endotracheal tube and still maintain proper cycling of the respirator and adequate pulmonary ventilation. The falling back of the tongue with blockage of the airway has not been a problem in preventing adequate ventilation with the respirators. Excess fluids and secretions if present should be removed by suction. The proper position of the head should be secured as quickly as possible, for in administering artificial respiration with respirators this is a most critical factor in determining success or failure.

3. The apneic subject in need of artificial respiration should be given 100 per cent oxygen, preferably with the automatic respirators. Studies on the arterial blood before treatment revealed low oxygen saturation, increased carbon dioxide content and a decreased p_H. The addition of 5 per cent carbon dioxide with oxygen would only increase the acidosis.

4. No signs or symptoms of acapnia or tetany were observed even in those subjects with decided hyperventilation (over 15 liters per minute) during artificial respiration. The average changes in p_H and pCO_2 with the automatic respirators producing ventilation rates from 5 to 15 liters per minute were not enough to produce clinical signs of alkalosis.

5. The decrease in cardiac output was variable, large decreases (30 to 40 per cent) occurring in some instances and no decrease in others on line pressures necessary for adequate ventilation. This observation has been correlated with the type of the mask pressure curve present rather than with a particular respirator.

6. The automatic and manual respirators, if properly adjusted, did not produce undesirable effects on the circulation when line pressures adequate to give pulmonary ventilation in apneic subjects were used. All the respirators studied were satisfactory for use and far superior to the manual methods of resuscitation.

7. The ideal mask pressure curve should increase gradually during inspiration to a peak not higher than about 25 cm. of water. The pressure should drop rapidly after reversal, in the beginning of expiration, decreasing quickly to or near atmospheric, with a mean mask pressure during the expiratory period as near as possible to atmospheric. Inspiratory time should not exceed expiratory time.

8. The type of mask pressure curve described in the preceding paragraph permits the right side of the heart to compensate during expiration. From a detailed study of the variations in net filling pressure in the right side of the heart, evidence has been presented indicating that the stroke volume decreases during inspiration due to increased pressure in the thorax. The time and pressure during expiration should be adjusted in such a manner that the total inspiratory cardiac output deficit can be made up by a sufficient

number of heart beats in expiration having a normal or increased stroke volume.

9. Although all the respirators performed in a satisfactory manner in producing adequate artificial respiration, the following criticism may be given for the design of each type as far as concerns the shape of the mask pressure curve produced by it.

Type 1, a pressure-sensitive respirator, may be improved to give a more nearly ideal physiologic performance by a modification of the valves so that the mask pressure curve at the beginning of expiration decreases quickly to or near atmospheric, with a mean mask pressure during the expiratory phase as low as possible. The performance of this apparatus was remarkable over long periods of time; it is easy to clean and sterilize. The plastic model was unsatisfactory due to the warping of valves and the danger of breaking the outside wall.

Type 3, a flow-sensitive respirator, produced an unfavorable type of mask pressure curve because (1) the expiratory time interval is to short and (2) the minimal pressure at the end of expiration is plus 2.5 cm. of water. This instrument was designed primarily for aviation use, and the increased expiratory pressure was advantageous at high altitude; however, the short expiratory period is undesirable even at high altitude with respect to the ideal mask pressure curve based on physiologic studies in man.

Type 4, another flow-sensitive respirator with the various adjustments provided, was an ideal research instrument for studying the numerous variables involved in intermittent pressure breathing and various types of mask pressure curves in relation to changes in cardiac output. The design is complex and the operation requires constant supervision by trained personnel. However, employing the basic principle of design, flow primarily, in contrast to pressure as on type 1, satisfactory production model respirators may be made. The expiratory flow outlet on commercial models of type 4 should be separate from the main respirator mechanism so that vomitus or secretion cannot be blown in the device and jam the reversing mechanism.

Type 5, an example of the "suck and blow" type, was slightly less capable of overcoming breathing resistance in the apneic subject as compared to the intermittent positive pressure models. The negative pressure phase has not been found advantageous over simple intermittent positive pressure. However, no harmful effects were observed when the "suck and blow" was used for one hour in 2 cases of deep coma. There was no evidence in this study that the negative pressure phase aided the circulation. The mechanical performance of the device was satisfactory.

Type 2 produced a mask pressure curve similar to that of type 1, which has already been discussed. The mechanical performance of this model was satisfactory.

Type 6, a manually operated respirator, produced a fairly satisfactory mask pressure curve. The expiratory valve should open more quickly and allow the pressure to drop more rapidly to atmospheric. The sliding valve arrangement was considered unsatisfactory, because the inexperienced operator may block effective ventilation by getting his hand in the way of the sliding part.

Type 7, another manually operated respirator, gave a very desirable type of mask pressure curve. The operation of this model was smoother and safer than that of type 6.

10. In the types of intermittent positive pressure respiration produced by mouth to mouth insufflation, by applying pressure on an anesthesia rebreathing bag or by manual respirators the operator controls the time ratio of inspiration to expiration. It is extremely easy to allow a slightly longer expiratory than inspiratory time period, which permits more heart beats during expiration and allows the heart to make up for the decreased output occurring during the phase of increased pressure in the thorax.

11. Oxygen, helium and oxygen mixtures, and compressed air are too dry for prolonged use on conscious subjects (such as those who have poliomyelitis with complete respiratory paralysis) with intermittent positive pressure respirators. Some form of humidification is necessary for the dry tank compressed gases.

12. Intermittent positive pressure can be used as a means for administering artificial respiration without decreasing cardiac output when the pressure and time for inspiration and expiration are properly regulated.

SANBORN VISO-CARDIETTE ACCEPTABLE

Manufacturer: Sanborn Company, 39 Osborn Street, Cambridge 39, Mass.

The Sanborn Viso-Cardiette is a direct-writing electrocardiograph. The records appear in permanent form on plastic-coated paper. The machine requires a 110 volt, 60 cycle alternating current and consumes 70 watts. The galvanometer is connected with a stylus bearing a heated point which records data on temperature-sensitive paper. A control is provided to adjust the temperature of the point. The recordings obtained in this way are not easily marred, nor are they affected by direct sunlight. Reloading of paper is easy.

The specimen submitted to the Council office for examination was sent to a special investigator for physical tests, as well as clinical trial, in the light of the Minimum Requirements for Acceptable Electrocardiographs as published in THE JOURNAL, 134:455 (May 31) 1947

1. *Recording Mechanism.* - The investigator reported that the foregoing statements concerning the recording mechanism were accurate.

2. *Sensitivity and Adjustability.* - External voltage sources, both alternating and direct, were connected with various leads through a series resistance of 2,000 ohms, as directed in the requirements. It was shown that the response of the instrument to its incorporated standardizing signal of 1 millivolt was within a range plus or minus 5 per cent of the response to the externally applied signal, and that the test signal voltage could be maintained for a period of two or more seconds. It was noted that the maximum sensitivity was 700 microvolts per centimeter. There was a slight wandering of the stylus from its adjusted base line during normal operation due to alternating current line-voltage fluctuations.

3. *Amplitude Response at Various Frequencies.* Amplitude response recordings of direct versus alternating current signals were obtained at frequencies of 1, 2, 5, 10, 15 and 40 cycles per second, and an external signal generator was swept through frequencies from 40 to 300 cycles per second, while the stylus deflection was measured in millimeters.

4. *Decay Characteristics.* - The response of the instrument at 0.2 second after the application of a direct current of 1 millivolt was compared with the response at 0.04 second.

5. *Relation of Deflection to Voltage.* - The magnitude of the stylus deflection was measured for every step of 100 microvolts from plus 2,000 through zero to minus 2,000.

6. *Adequacy of Grounding.* - With the electrocardiograph connected as for previous tests, and with a millivolt of external direct current pulse applied to the input terminals, the sensitivity was adjusted to give a 1 cm. deflection, and a recording was obtained. The input terminals were then shorted together, and the same signal was applied between this point and the ground of the instrument. There was no response under this latter condition. Increasing the input signal to 100 millivolt gave a 0.5 mm. deflection.

7. *Timing Mechanism.* - A synchronous motor actuates a contractor and provides one second time signals; these can be recorded with any of the leads.

8. *Shock Hazard.* - Although the instrument did not carry an "Underwriters' Listed" label, there was no measurable voltage at the patient cable leads and ground at any setting of the leads-selector switch.

The firm complied with all requirements as regards advertising material and promotional methods. The Council on Physical Medicine voted to include the Sanborn Viso-Cardiette in its list of accepted devices.

DAZOR SUN-HEAT LAMP FIXTURE ACCEPTABLE

Manufacturer: Dazor Manufacturing Corp., 4481-4487 Duncan Avenue, St. Louis.

The Dazor Sun-Heat Lamp Fixture is of the pedestal-type having a circular cast iron base. Above the base there rises an upright bearing the switch box and the pivot for the floating arm bracket. The bracket consists of two arms hinged together so that the maximum reach is 61 cm. (24 inches). At the far end of the outer arm there is a reflector housing that contains a plastic heat-resistant handle for positioning. The fixture as a whole is sturdy and attractive in appearance and bears the approval of the Underwriters' Laboratories.

Bulbs are not furnished with the fixture. It is, however, especially useful in connection with R S sun bulbs drawing 275 watts on 110 to 125 volts alternating current supplies and R-40 heat bulbs drawing 250 watts on 110 to 125 volts alternating or direct current supplies. The diameter of the base is about 30 cm. (12 inches), and the whole weighs 11.3 Kg. (24 7/8 pounds); the shipping weight is 17 Kg. (37¼ pounds).

The apparatus was studied by an investigator for the Council, and was found satisfactory. The Council on Physical Medicine voted to include the Dazor Sun-Heat Lamp Fixture in its list of accepted devices.

WHIRLPOOL CARRIAGE, MODEL A, ACCEPTABLE

Manufacturer: Whirlpool Carriage, Inc., 113 East State Street, Westport, Conn.

The Whirlpool Carriage is a portable device for agitating the water in a bathtub or basin. It can be trundled alongside the tub; the casters can be either released or locked. The top of the apparatus can then be raised, rotated through an angle of 180 degrees, and lowered into the water. The stirring mechanism, as it is rotated into place over the water, will clear the brim of the tub at a height of 51 cm. (20 inches) above the floor; by tilting the base, it can be made to clear a brim of 61 cm. (24 inches) above floor level. The usual precautions must be observed to guard against shocks from the use of electric equipment near water; a ground wire is to be clipped to a good ground contact.

The motor connected to the agitator requires a 110 to 115 volt alternating current and draws 650 watts. The base of the apparatus is finished in a white-cream enamel. The total weight of the apparatus is 40.8 Kg. (90 pounds); the shipping weight is 97 Kg. (216 pounds). Its height when not in use is 64 cm. (25 inches).

When examined by an investigator for the Council, the apparatus was found to be of sturdy construction and neat appearance. Additional evidence from other sources acceptable to the Council corroborated the investigator's report of satisfactory performance. The Council on Physical Medicine voted to include the Whirlpool Carriage, Model A, in its list of accepted devices.

ALOE "HELIOGRID" COLD RAY QUARTZ LAMP ACCEPTABLE

Manufacturer: A. S. Aloe Company, Olive at Nineteenth Street, St. Louis.

The Aloe "Heliogrid" Cold Ray Quartz Lamp is a source of ultraviolet light using mercury vapor in a "body grid" composed of "84 inches (238.76 cm.) of pure fused quartz with special graded leakproof seals." This grid is mounted in a spun steel head finished in bronze and trimmed with chromium. The over-all height is 170 cm. (67 inches). The lamp is adjustable vertically and horizontally. The base, equipped with 2 inch (5.08 cm.) casters, houses the transformers. The lamp operates on 115 volts alternating current and draws 40 watts. It is equipped with a built-in timer adjustable for periods from a few seconds to five minutes.

The lamp submitted by the firm was sent to an investigator. He reported that an exposure of 60 to 75 seconds with the grid applicator at 60 cm. produced a perceptible erythema in twelve hours. The lamp is well constructed and of good appearance. The grid applicator was easily adjustable; the orificial applicator was well made and easy to manage. A rayon sleeve is provided to be used over the orificial applicator tube. The exposure guide accompanying the apparatus seemed accurate enough for general use by a physician.

Since this lamp met the erythema dose requirements established by the Council on Physical Medicine of the American Medical Association for cold quartz lamps and in view of the good construction of the lamp, the Council voted to include the Aloe "Heliogrid" Cold Ray Quartz Lamp in its list of accepted devices.

DUREX DIAPHRAGMS, INTRODUCERS AND FITTING RINGS ACCEPTABLE

Manufacturer: Durex Products, Inc., 684 Broadway, New York.

Durex Products, Inc., submitted the following devices to the Council on Physical Medicine: Deep Dome Dumas Diaphragms, Shallow Dome Diaphragms, Duraflex Diaphragms (Matrisalus), Coiled Spring Diaphragms, Mensinga Diaphragms (Flat Spring), Bow-Bend Diaphragms, Coiled Spring Measuring Rings, Individual Diaphragm Introducers and Mayer Diaphragm Introducers.

These devices were referred to an investigator specializing in gynecology for examination and report. Their construction and the evidence for their effectiveness and safety were declared satisfactory. The investigator also reported that the products satisfied the Requirements for Acceptability of Contraceptive Devices recorded in THE JOURNAL(132: 991 [Dec. 21] 1946).

The Council on Physical Medicine voted to include the Durex Diaphragms, Introducers and Fitting Rings in its list of accepted devices.

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SATURDAY, MAY 22, 1948

EDITORIAL ANNOUNCEMENT

The absence of the compositors from their work continues. This issue of THE JOURNAL has been prepared in part by the use of Vari-Typer machines.

RICKETTSIALPOX, A NEW RICKETTSIAL DISEASE

Reports of cases of an acute febrile disease of unusual character were first received by the New York City Department of Health toward the end of June 1946. Sussman[1] reported a recent increase of cases of a peculiar "spotted fever" disease which appeared in the housing development in Kew Gardens, Queens. The clinical appearance resembled that of typhus. The failure to cause agglutination with the usual antigens distinguished the condition from known diseases. Shankman[2] examined more than 60 patients presenting similar symptoms during the same period in the three block square area of Regency Park. The area involved was infested with mice and rats so that the possibility of a rickettsia or virus etiology was strongly suggested.

A joint study by the New York City Health Department and the United States Public Health Service of 144 nonfatal cases of this disease[3] helped to establish the disease as a definite clinical entity for which, because of some similarity to chickenpox, the name rickettsialpox was suggested. The disease is characterized by the appearance of an initial lesion about a week before the onset of fever, chills, sweats, headache and backache and by the appearance of a maculopapular and papulovesicular rash about three to four days after the onset of fever. Except for leukopenia, routine laboratory results are generally negative. The usual bacterial agglutination tests are uniformly negative; however, antibodies for rickettsialpox are demonstrable by means of the complement fixation test. There have been no deaths. Blood cultures were negative in all of the patients. Agglutination tests for typhoid bacilli, paratyphoid bacilli A and B, Brucella, Leptospira icterohaemorrhagiae, Leptospira canicola and Pasteurella tularensis were done with the serums of 30 samples of blood obtained from patients in both the acute and the convalescent stages. Agglutination tests for Proteus OX19 and OX2 were done with the serums of a considerable number of recovered patients. With the exception of a few that agglutinated in low titers, all were negative.

Huebner[4] and his associates at the National Institute of Health isolated from each of 2 patients with this disease an organism proved to be a rickettsia. This organism produced illness in mice and guinea pigs and grew well in the yolk sacs of fertile eggs. Ether-extracted yolk sac antigens were prepared which fixed complement with convalescent serums drawn from typical cases. "Cross tests" with immune serum and antigens from other species of rickettsia demonstrated that this strain is antigenically distinct from the organisms causing typhus, tsutsugamushi and Q fever. The reaction appeared to be specific except for the cross reactions with Rocky Mountain spotted fever. The behavior of the isolated organism resembled that of Rickettsia conori, the causative agent of fièvre boutonneuse, except for the failure of the disease under study to stimulate agglutinins for strains of Proteus OX 19 and OX 2 in the serums of most of the New York patients.

The basements of the dwellings in which some of the cases occurred were infested with mice and with the rodent mite Allodermanyssus sanguineus. Huebner[5] and his associates recovered a rickettsia from a saline suspension of the tissues of mites and a rickettsia which was morphologically, culturally and serologically similar from a mouse "bitten" by A. sanguineus. The behavior of the two mite strains in producing disease in guinea pigs, mice and chick embryos and as antigens in the complement fixation tests seem to establish the

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1. Sussman, L.N.: Kew Gardens' Spotted Fever, New York Med. 2:27 (Aug. 5) 1946.
2. Shankman, B.: Report on an Outbreak of Endemic Febrile Illness, Not Yet Identified, Occurring in New York City, New York State J. Med. 46:2156 (Oct. 1) 1946.
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5. Huebner, R.J.; Jellison, W.L., and Armstrong, C.: Rickettsialpox: Newly Recognized Rickettsial Disease, Recovery of Rickettsia Akari from House Mouse, Pub. Health Rep. 62:777 (May 30) 1947.

as identical with the strain of rickettsialpox isolated from the patients. Further evidence of this identity has been provided by solid immunity afforded guinea pigs by rickettsialpox against one of the mite strains. Apparently identical strains of rickettsia from a man ill with rickettsialpox and from bloodsucking mites collected from the domicile of the same man indicate that human infection is acquired from the mites probably through biting. The authors suggest the name Rickettsia akari for this newly discovered microorganism of the rickettsial group.

MENTAL HOSPITALS: NEW YORK

The Committee on Public Health Relations of the New York Academy of Medicine[1] has recently reported on problems of the New York state mental hospitals system. Administrators of such hospitals face numerous problems, but they are especially concerned with provision of care for more patients than the rated capacities of their institutions. Public indifference to the fate of mental patients is still reflected by the depersonalization of care rendered in mental hospitals. Research programs connected with the mental hospital system are badly needed. The principal problems are overcrowding, understaffing, insufficient funds and deteriorated physical plants. Immediate recommendations call for correction of existing overcrowding by systematic review of patients, with discharge of patients in convalescent state or to family care. Expansion of the program of family care is desirable to secure increase in numbers of foster homes for mental patients and establishment of proper levels of payment. An effort should be made to attract competent personnel by providing adequate salaries and good living conditions. Proper investigation is necessary to obtain larger payments from relatives of patients. Repair of existing deficiencies in physical plants is necessary with advice from expert architects. Present inadequacy should be brought to the attention of the public and legislative bodies. The committee recommends long term planning to formulate a definite, integrated policy for future care. Institutional units should be limited to not more than 3,000 beds. New mental hospitals need to be located near large urban centers, so that they may affiliate with teaching institutions. Experimental hospital units for new approaches to treatment are necessary. An attempt should be made to establish sufficient numbers of psychiatric clinics to insure proper preventive outpatient care and treatment. The staffs of mental hospitals should be qualified to conduct research in the physiologic as well as psychologic factors of mental disease. Psychiatric service must provide comprehensive training programs for both young psychiatricts and general interns and special provision should be made for graduate training of psychiatric nurses, social workers, clinical psychologists and other needed auxiliary personnel. Finally, the public should be thoroughly enlightened concerning mental illness, its prevention and the needed facilities for treatment.

The committee report on conditions and needs in the mental health field of New York state mirrors completely conditions and needs in mental health throughout the United States.[2] Mental health is outstandingly a leading medical, public health and social problem.

Throughout the nation funds are insufficient for improvement of physical plants, increased facilities for training of personnel and increased research. Present knowledge offers the greatest hope for improvement of mental health in the United States by a concerted attack in the preventive field. Goals have been set which demand availability of at least one mental hygiene clinic per hundred thousand population. While this goal has by no means been reached today, the immensity of the problem would in all likelihood still make it insufficient. The need is certain to be increased once a properly educated public is relieved of its tendency to avoid obtaining psychiatric aid even when they themselves recognize the need.

No other field of health is as greatly handicapped by social stigma as is mental ill health. This handicap will be diminished and real needs supplied only by a greatly intensified program of public education wherein responsibilities are made known and the implications of personal and collective social attitudes in determining mental ill health are made clear

Current Comment

REGISTRATION UNDER THE HARRISON NARCOTIC ACT

Physicians who are registered under the Harrison Narcotic Act or under the Marihuana Tax Act must effect registration on or before July 1 to avoid a penalty. Each year, despite the annual warnings in THE JOURNAL, this requirement is overlooked by some physicians and unpleasant consequences follow. Failure to register adds a penalty of 25 per cent to the tax payable and in addition subjects the physician to the possibility of a fine not exceeding $2,000 or to imprisonment for not exceeding five years, or to both. As an act of grace the Commissioner of Internal Revenue has in past years given some tardy registrants the choice between paying sums by way of compromise, a procedure authorized by law, or accepting criminal prosecution. If this procedure does not produce the required promptness in reregistration, the commissioner will have no other alternative than to institute criminal prosecution.

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[2] Situation in Psychiatry, Miscellany, J.A.M.A. 137:212 (May 8) 1948. Menninger, W. C.: Facts and Statistics of Significance for Psychiatry, Bull. Menninger Clin. 12:1-25 (Jan.) 1948.

WHICH KENNETH WALKER WILL YOU HEAR?

About a year ago THE JOURNAL received a complaint from England that misrepresentations were occurring with respect to the identity of an American lecturer named Kenneth Walker. A distinguished Fellow of the Royal College of Surgeons has the same name. Contact was made with the American lecturer; he wrote that only recently had he become aware of the identity of the English surgeon and he asserted that the misrepresentation in promotional material being used by a booking agency in his behalf had come about rather innocently. The American lecturer had left a copy of a book written by the English physician in an office where an unnamed employee had accidentally seen it and assumed at once that the American was the author. Distribution of the erroneous piece of promotional literature, according to the American Kenneth Walker, had been stopped. Now Dr. Kenneth Walker of London, author of the well known book, "Physiology of Sex," has again indicated that there is persistent reliance on the similarity of the names by the American lecturer. The American Kenneth Walker has appeared before many gatherings during the past season, using as a subject " Live Together or Live Not." The impression is apparently prevalent that the American, who lectures on personal experiences and observations in foreign countries during the World War just ended, is the eminent English surgeon. A man has exclusive right to his reputation. When his name is the same as that of another man, confusion of repute should be avoided. Abuse of the similarity in names is not only undesirable but unethical and may be damaging. Since the British Kenneth Walker is an eminent physician and the American is not, confusion as to the identity might be especially reprehensible.

AMINO ACID AND VITAMIN INTERRELATIONS

Recent experimental observations on the production of deficiency complexes and their therapeutic control by varying the quantitative and qualitative dietary intake of amino acids and vitamins may have distinct implications as to the etiology and treatment of certain conditions of disease in man. The first observation suggestive of an interrelation between the activity of vitamins and amino acids was provided by Goldberger, who noted that the amino acids tryptophane and cystine exert some beneficial effect in human pellagra, indicating that factors in addition to nicotinic acid may be involved in the production of this disease. Subsequent observations showed that blacktongue, the canine counterpart of pellagra in man, produced by feeding corn grits and a synthetic diet low in nicotinic acid, as well as the growth inhibition in rats under the same diet, can be counteracted by adding tryptophane alone to the diet.[1] Bessey and Wolbach[2] found that in rats on a diet deficient in lysine or tryptophane there developed corneal vascularization similar to that in animals with riboflavin deficiency. Maun, Cahill and Davis[3] reported similar ocular lesions in rats on a diet deficient in leucine. Hueper[4] observed the development of porphyrin incrustations on the snout and ears of rats on a diet low in protein and methionine and deficient in aromatic amino acids (gelatin). These conditions, usually found in certain vitamin deficiencies (riboflavin, pantothenic acid), were not obviated when large amounts of these vitamins were added to the diet. The inhibition of growth exerted on cultures of Streptococcus lactis by excessive amounts of glycine or serine in the medium as well as the toxic effects elicited in animals given abnormal quantities of these amino acids can be prevented by pyridoxine.[5] Daft[6] recently recorded that rats made agranulocytic by feeding a protein-free diet gave granulocytic response when given folic acid; he noted that this action was accentuated when nicotinic acid, methionine and threonine were added. While the granulocytic reaction to the vitamins was rapid, it was slow if the agranulocytic rats were given a mixture of essential amino acids. There appears to be a relationship between amino acid and vitamin deficiencies and the development of blood dyscrasias. The experiments of Wissler and associates[7] revealed that the repletion of protein and the formation of antibodies in protein-depleted adult rats is impaired when these animals are fed a ration adequate in high quality protein but deficient in certain vitamins. It is not likely that the action of the amino acids is due to a direct replacement of vitamins. An adequate supply of suitable amino acids seems to enable the animal organism or its intestinal flora to synthesize vitamins of the proper type. The utilization of vitamins by the organism, on the other hand, seems to be defective unless adequate amounts of amino acids of the proper type are available. Since radical changes in the kind of intestinal bacterial flora and thereby in the quantitative and qualitative production of vitamins by these micro-organisms can be brought about by dietary changes, control of the resultant manifestations of deficiency may be accomplished in certain conditions by varying the quantitative and qualitative intake of proteins. The various observations on the interrelations between the action of amino acids and vitamins may find some practical application in human medicine in connection with the treatment of starvation states, the use of specific amino acid therapy and the causation and control of chemical blood dyscrasias, especially those of the agranulocytic variety.

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ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

May 21, 1948.

Report Stresses Progress In Medical Care

A report prepared by Dr. George W. Bachman and Dr. Lewis Meriam for the private Brookings Institution, on behalf of the Senater Subcommittee on Health of the Labor Committee, observes that the United States had made great progress in health conditions. It points out that forty years ago the United States was outclassed by leading nations, while today the health of the white population is better than that of larger western European nations. It is on a par with the small nations with the best records. Health of Negroes is less favorable because of economic and social reasons, rather than lack of medical care. The report also states that there are not enough physicians to meet demands of a compulsory health insurance system.

Further Delay In Clearing World Health Bill

Although the House Republican Steering Committee had cleared legislation to permit the United States to join the World Health Organization, further delay was encountered in getting this bill out of the Rules Committee. The Republican Committee checked major legislation in advance of the scheduled June 19 adjournment and included the measure among bills slated for action this week. The Senate passed the W.H.O. bill unanimously last year and the House Foreign Affairs Committee approved it unanimously, but the Rules Committee blocked action on it. This barred the United States from charter membership in the World Health Organization and presented a strong propaganda weapon to forces opposing the democratic system of government. The State Department is in favor of congressional action so that the United States can take part in the meeting of the World Health Organization in Geneva, Switzerland, in June.

Delegates Make Capital A Medical United Nations

The two thousand delegates from all over the world to the fourth International Congresses on Tropical Medicine and Malaria gave the national capital the semblance of a medical United Nations. Sessions were conducted in English, French and Spanish, and local hotels had delegates registered from around the globe. The federal government sponsored the conference through the State Department and six other agencies, with the cooperation of fifteen national professional societies and several intergovernmental agencies. A total of one hundred and fifty societies and sixty governments received invitations, and one hundred and eighty papers from outstanding scientists of thirty seven nations were read. The scientific program was conducted in twelve sections, with as many as four meetings being held simultaneously.

U. S. Public Health Service Appointments

Surgeon General Leonard A. Scheele of the U.S. Public Health Service announced the appointment of the new deputy chief, Dr. W. Palmer Dearing of Chevy Chase, Md., and other division heads. Dr. Dearing is deputy Surgeon General and as second in command will serve as Surgeon General in Dr. Scheele's absence. He succeeds Dr. James A. Crabtree, who will direct medical mobilization planning for the National Security Resources Board. Dr. Bruce D. Forsyth was named assistant surgeon general and chief of the Dental Division, succeeding Dr. William Wright Jr., who has been transferred to duty with the Bureau of Employes Compensation, Federal Security Agency, and the Bureau of Indian Affairs, Department of Interior. Dr. Eugene A. Gillis succeeds Dr. Dearing as head of the service's Division of Commissioned Officers. He has been assistant chief. The appointments became effective May 17.

National Nutritional Yardstick Lowered By Council

The National Research Council reported at its conference here that the national nutrition yardstick has been reduced by the food and nutrition board. The daily calory allowances for sedentary persons has been dropped 100 calories below previous recommendations, with the claim that the original figure had been shown by studies since 1941 to be higher than persons actually need. The previous limit was said to be likely to cause too great an increase in weight for good health.

Amputees Win Awards For Testing Artificial Limbs

Robert S. Allen, newsman who served overseas as press chief for the late General George S. Patton Jr., was one of fifteen amputees who have been honored by the Army for " outstanding and patriotic service in testing artificial limbs and furthering the general program of research and development in the field of prosthetics." Secretary of the Army Kenneth C. Royall presented the certificates to three recipients in Washington, D. C., and army commanders in other areas were to make similar presentations to twelve others. Mr. Allen is consultant to the Committee on Artificial Limbs and cooperates with the Army Prosthetic Research Laboratory, the Mare Island Naval Hospital limb shop and Northrop Aircraft, Inc., in the development of artificial limbs and devices.

Medical Legislation

Michigan

Bill Enacted.—H. 14-XXX has become public act 14 of the Acts of 1949. It amends the hospital survey and construction act by providing that any hospital receiving federal aid under the federal hospital survey and construction act shall comply with the minimum standards of maintenance and operation which the state department of public health with the advice of the advisory hospital council shall promulgate.

Rhode Island

Bills Enacted.—H. 604 was approved April 30, 1948. It requires the enrichment of bread and flour by the addition of certain vitamins and minerals for the better protection of the public health. H. 658 was approved April 30. It provides for an act to extend and strengthen the mental health services in the state and designates the state department of social welfare as the agency to cooperate with the federal government in this regard. H. 743 was approved April 30, 1948. It provides for the licensing, regulation, inspecting and examination of homes for the aged or convalescent persons.

South Carolina

Bill Enacted.—H. 1214 has become Govenor's Act 1156 of the Acts of 1948. It puts sulfanilamide, sulfapyridine, sulfadiazine, aminopyrine, thyroid and other antifat preparations, together with any other drugs declared to be " dangerous drugs," on a prescription basis.

GOVERNMENT SERVICES

ARMY

MEETING OF CONSULTANTS

The Advisory Council of the Society of United States Medical Consultants in World War II met in the Surgeon General's Office May 8 to discuss future planning related to medical department personnel, revision of tables of organization, a new system of unit mobilization, problems of training and education and plans for medical reserve officers. Among those present were: Drs. Frank B. Berry, president; Henry M. Thomas Jr.; M. Ralph Kaufman; Alfred R. Shands Jr.; M. Barnes Woodhall; Donald M. Pillsbury; Yale Kneeland Jr.; Walter Bauer; Perrin H. Long; Ivan C. Berlien; I. Ridgeway Trimble; Francis R. Dieuaide; I. S. Ravdin; Harold A. Sofield; John V. Ambler, and Henry W. Brosin.

NEW VENEREAL DISEASE CONTROL FILM

More than one thousand four hundred educators and members of the clergy from the District of Columbia, Maryland and Virginia were invited to see March 10 the Army's new training film on veneral disease control, "Miracle of Living." The film, which is the only one currently in use for this purpose, emphasizes the moral approach to anti-venereal disease hygiene. The group was addressed by Kenneth C. Royall, Secretary of the Army, Major Gen. Raymond W. Bliss, the surgeon general, and Major Gen. Luther D. Miller, chief of chaplins. Lieut. General Willard S. Paul, director of personnel and administration, department of the Army, and president of the Army Venereal Disease Control Council, presided. A discussion was conducted after exhibition of the film, thus typifying the Army's policy of seeking civilian counsel and participation in the formulation of policies in moral and educational matters.

AWARDS AND COMMENDATIONS

Captain Harold F. Rheinlander

Capt. Harold F. Rheinlander, M.C., A.U.S., of Washburn, Maine, has been awarded the Army Commendation Ribbon for meritorious service for the period April 1946 to March 1948 as assistant chief of surgical service and then chief of surgical service, Regional and Station Hospital, Maxwell Air Force Base, Montgomery, Ala. Dr. Rheinlander graduated from Harvard Medical School, Boston, in 1944 and entered military service in April 1946.

Captain John C. Jarrett

Capt. John C. Jarrett, M.C., A.U.S., of Ellwood City, Pa., has been awarded the Army Commendation Ribbon for meritorious service for the period April 1946 to March 1948 as chief of obstetrical and gynecology service, Regional and Station Hospital, Maxwell Air Force Base, Montgomery, Ala. Dr. Jarrett graduated from Western Reserve University School of Medicine, Cleveland, in 1945 and entered military service in April 1946.

Captain Edmund D. Pellegrino

Capt. Edmund D. Pellegrino, M.C., A.U.S., of Brooklyn, has been awarded the Army Commendation Ribbon for meritorious service for the period April 1946 to March 1948 as assistant chief and then chief of medical service, Regional and Station Hospital, Maxwell Air Force Base, Montgomery, Ala. Dr. Pellegrino graduated from the New York University College of Medicine, New York, in 1944 and entered military service in April 1946.

AIR FORCE

AVIATION PHYSIOLOGISTS

Seventeen medical corps officers graduated April 16 from the aviation physiologists' course at the School of Aviation Medicine, Randolph Field, Texas Among the graduates were Lieut. Col. Francisco Sureda and Second Lieut. Amilcar Augusto, Air Force of Uruguay, Capt. George Cantoni, Air Force of France, and Lieut. Hilmi Dinc, Air Force of Turkey. The course is offered to medical officers who complete the aviation medical examiners' course. It prepares graduates to indoctrinate flying personnel on the changes in body functions at high speed and altitude. Counteraction, prevention and treatment of these physiologic changes form a major part of the instruction given to students. Col. Don Flickenger, Medical Corps, director of medical sciences, addressed the graduating class.

PROMOTIONS

John M. Hargreaves, deputy air surgeon, has received a temporary promotion to brigadier general in the medical corps of the Army. General Hargreaves, a native of Illinois and a graduate of the University of Minnesota Medical School, entered the service in 1925 and after graduating with honors from the School of Aviation Medicine in the following year was attached to the Air Forces, in which he has served since. He is also an honor graduate of the Army Medical School, a graduate of the Medical Field Service School and the Command and General Staff School. General Hargreaves was chief surgeon of the 8th Air Force on Okinawa during the recent war and later surgeon of the Pacific Air Command with headquarters at Manila and later at Tokyo.

Col. Harry G. Armstrong, commandant, Air University School of Aviation Medicine, Randolph Field, Texas, has been promoted to the rank of brigadier general. General Armstrong graduated at the University of Louisville School of Medicine and entered the Army in 1929. During World War II he was surgeon of the 8th Air Force in the European theater of operations and also surgeon, Armed Forces Division, Office of Military Government (United States) Berlin, Germany. His "Principles and Practice of Aviation Medicine" is a standard textbook throughout the world. In recognition of his work he has received the Collier Trophy and the John Jeffries award and has been decorated by England, France, Belgium and Poland.

BORDER HEALTH ASSOCIATION

Recently the United States Mexico-Border Health Association held a conference at Laredo, Texas, and Nueva Laredo, Mexico. Lieut. Col. Kenneth E.

Pletcher, M.C., from the School of Aviation Medicine, Randolph Field, Texas, was among the speakers. Following the conference, Dr. David Glusker, México, D.F., and Lieut. Col. Patricio Y. Funtes, commandant of the Indoctrination Center, Army of Mexico, visited Randolph Field and the Preventive Medicine Department and its allied research unit at the School of Aviation Medicine.

SCHOOL OF AVIATION MEDICINE

Dr. Gunnar Lundin of Sweden and Dr. Vogt Lorentzen of Norway, Scandinavian aviation physiologists, visited the School of Aviation Medicine, Randolph Field, Texas, to study laboratory procedures in aviation medicine. Sweden is in process of establishing a School of Aviation Medicine on the basis of the requirements at the Air University School of Aviation Medicine at Randolph Field.

AWARDS AND COMMENDATIONS

Major Cortez F. Enloe Jr.

Major Cortez F. Enloe Jr., now of Manhasset, Long Island, N. Y., has been awarded the Air Medal. The citation reads as follows: For meritorious achievement while participating in aerial flight in the China-Burma-India Theatre from February 1944 to May 1944. As Flight Surgeon with the First Air Commando Force, Major Enloe contributed to the success of combat operations and the aerial evacuation of wounded from behind enemy lines. The exceptional courage, professional skill and devotion to duty exhibited by Major Enloe while engaged in missions of unusual hazard reflected great credit on himself and the Army Air Force.

Dr. Enloe graduated from Friedrich Wilhelms Universität Medizinische Fakultät, Berlin, Germany, in 1937 and entered the military service of the United States in September 1942.

NAVY

RESEARCH ON TROPICAL DISEASES

The Naval Medical Research Unit, which is a part of the University of California's African Expedition, arrived in Africa in February to begin a year's study of tropical diseases. It traveled through the agricultural areas of Egypt, the Libyan Desert and the Assuan Mountains. A Bedouin guide led the party through the unbroken terrain of the desert and mountains. On reaching Wadi Halfa the Company ferried the equipment to the east bank of the Nile and opened the first temporary research laboratory in a government rest house. The Nubian Desert from Wadi Halfa to Abu Hamed was worked for zoologic as well as medical specimens. Fox, jackal, hyena, gazelle, reptiles and small game abound in this area; the only birds noted were white vultures and black ravens. In considering human diseases found in the Nubian area, Commander J. M. Amberson, MC, Commandant, reports they are similar to those normally occurring in persons of the temperate zones. Malaria, bilharzia, and trachoma are prevalent. Rheumatism, arthritis and diabetes are frequently found among the Nubians. Tropical diseases are found in the Northern Sudan. At Wadi Halfa and Abu Hamed portable x-ray machines were set up, giving the natives their first experience with x-ray. Through this project numerous diagnoses were made of fractures, renal stones, arthritic changes, pleural effusions, tuberculosis, enlarged hearts and osteomyelitis. The inhabitants of the Nubian area were examined by the medical officers to get a cross section of the diseases found there. Asthma is prevalent and found to be caused by hordes of chironomid flies. Another pest, the black fly (Simulium damnosum) attacked the group every afternoon, and its bite caused profuse bleeding. Though not a disease transmitter at Abu Hamed, this fly is infected at Dongola and in the southern Sudan, and in some areas it causes epidemic blindness.

The Naval Medical Reserve Unit now in the Anglo-Egyptian Sudan has trapped eight living shrews, some of them infected with malaria. The shrew, a mouselike creature, rare in captivity, was reported in 1913 to be infected with an undefined type of malaria, and the present report confirms this. These shrews will be sent to Washington, D. C., and placed in the care of the director of the National Zoological Park and of Dr. Clay Huff of the parasitology Department, Naval Medical Research Institute, Bethesda, Md. The Navy considers that the capture of these animals may prove of great importance in the evaluation of new chemical drugs having possible curative action on malaria.

NEW REGULAR OFFICERS

The following lieutenants (junior grade) have transferred from the Medical Corps Reserve to the Regular Navy Medical Corps: William L. Chapman, Warren, Pa.; Charles R. Sullivan, St. Petersburg, Fla., and Gilbert A. Webb, Oakland, Calif. All are graduates of the Navy's V-12 program.

The following physicians from civil life have accepted temporary appointments in the Regular Navy Medical Corps: Lieut. (jg) John J. Flahive, Springfield, Mass., and Lieut. (jg) Roy S. Ogren, Palo Alto, Calif.

Lieut. Carl E. Pruett of Kinmundy, Ill., U.S.N.R., has been nominated for active duty pending his acceptance of appointment in the Medical Corps of the Regular Navy.

Comdr. John J. Brown of Bellerose, N.Y., U.S.N.R., has accepted appointment in the regular Navy Medical corps.

Lieuts. (jg) William R. Thomas of Akron, Ohio, and Robert R. Sexton of Ipave, Ill., both graduates of the Navy's V-12 program, have accepted appointments in the regular Navy Medical Corps.

OFFICERS APPROVED FOR GRADUATE TRAINING

At a meeting in April of the Advisory Board to the Bureau of Medicine and Surgery, the following Navy Medical Officers were approved for graduate training:

Comdrs. E. E. Hogan of Oxford, N. Y., and R. R. Rambo of South Bend, Ind., to continue law course at the George Washington University School of Law.

Comdr. Harold A. Streit of Algona, Iowa, fellowship in orthopedic surgery at the Cleveland Clinic.

Comdr. John S. Thiemeyer Jr. of Norfolk, Va., extension of present course in Children's Orthopedics at the Children's Hospital, Boston.

Comdr. Joseph L. Yon of Charlottsville, Va., residency in surgery, Naval Hospital, Great Lakes, Ill.

Lieut. Howard W. Hill of Oakland, Calif., residency in surgery, Naval Hospital, Oakland.

Lieut. Jack S. May of Hyattsville, Md., to continue law course at Catholic University of America, School of Law.

SOCIETY NEWS

Rear Admiral H. Lamont Pugh (MC), assistant chief of the Bureau of Medicine and Surgery, addressed the section on General practice of medicine of the District of Columbia Medical Society, Washington, D.C., on the "The Role of the General Practitioner in Modern Medicine."

VETERANS ADMINISTRATION

HOME TOWN MEDICAL CARE FOR VETERANS

Dr. Paul B. Magnuson, chief medical director, Veterans Administration, writes: "It has come to my attention that considerable misunderstanding has developed throughout the medical profession concerning the establishment of fees for medical services to be paid private physicians participating in the so-called "Home Town Medical Care Program for Veterans." It has been contended that the Veterans Administration has arbitrarily established a fee schedule which represents the maximum amount which may be paid for any given service and which is, in effect, a national fee schedule. It has also been contended that the various state medical societies and other interested groups were not consulted when this fee schedule was adopted.

"In order to clear up any misunderstanding regarding this matter, it is desired to emphasize that my predecessor, Dr. Paul R. Hawley, had no intention at any time of establishing a national schedule of fees, nor do I contemplate doing so. However, the fee schedules originally submitted by the various state medical societies, when the "Home Town Medical Care Program" was inaugurated, varied so widely in format, terminology and fees for similar or identical services that it was deemed advisable to establish a uniform fee schedule format and to set up tentative fees which could be used as a guide by the various state medical societies when submitting their proposals for the furnishing of medical care to veterans.

"This uniform fee schedule format was formulated by the Professional Group of National Consultants to the Chief Medical Director. This group, representing the various specialties in medicine and surgery, is composed of eminent physicians from all parts of the country. Tentative fees were set up in the format after a careful analysis of prepaid medical care plan workmen's compensation and insurance fee schedules, and also the fee schedules in effect in the various states having agreements with the Veterans Administration. As was to be expected, considerable variation occurred in the fee schedules reviewed.

"The Professional Group of National Consultants made every effort to arrive at fees that were considered to be within reasonable limits and which would, as nearly as possible, allow a uniform provisional fee schedule for use as a guide in facilitating and expediting the preparation of agreements between state medical societies and the Veterans Administration.

"Further attempt was made to provide for elasticity in the charges for certain operations or other services which seemed to evoke more than average contention by listing the minimum and maximum amounts considered equitable. These items bear the notation "AA," which indicates that the fee for the given service is to be determined by arbitration and agreement between the Veterans Administration and the medical society concerned.

May I reiterate that the Veterans Administration Fee Schedule Format is in no sense to be construed as an arbitrary or national fee schedule. Furthermore, it is subject to periodic review and such modification as conditions may indicate."

VETERAN TRAINING FOR A MEDICAL CAREER

The Veterans Administration announced May 17 that one in every twenty-five World War II veterans training under the G. I. Bill is preparing for a career in medicine or a related field. Of former service men and women, 191,337 were enrolled in educational institutions in training for medical positions ranging from laboratory technicians to surgeons. Of these, 25,293 were enrolled in medical schools and 18,265 were in premedical training; 13,245 veterans were training to become pharmacists and 5,194 to become laboratory technicians and assistants.

Veterans are eligible for educational training benefits if they served in the armed forces between September 16, 1940 and July 25, 1945, had ninety days or more of active service and were released under conditions other than dishonorable.

PUBLIC HEALTH SERVICE

THREE NEW MAJOR GENERALS

The rank of major general has been conferred on three Bureau chiefs of the Public Health Service, according to Oscar R. Ewing, Federal Security Administrator. Elevated in rank from brigadier general were Dr. R. C. Williams, chief, Bureau of Medical Services; Dr. C. L. Williams, chief, Bureau of State Services, and Dr. R. E. Dyer, director, National Institute of Health. The action was under authority of Public Law 425 (S. 1454), passed February 28 by the Eightieth Congress, which amended Public Law 410, Seventy-Eighth Congress, the 'Public Health Service Act."

INCREASE IN RESIDENT PATIENTS

At the end of 1946, 382.4 of every 100,000 persons in the civilian population of continental United States were in hospitals for the prolonged care of psychiatric patients, according to figures of the Mental Hygiene Division of the Public Health Service, released April 21 by the Federal security Administrator. The number of resident patients increased during the year by 10,575, representing about 2 per cent of the 518,672 present at the beginning of the year. The number of first admissions to prolonged care hospitals during 1946 was 153,025. The figures are based on results of the 1946 Census of Patients in Mental Institutions, collected by the Bureau of the Census. Collection of these data was made a function of the Mental Hygiene Division of the U. S. Public Health Service in February of this year. The statistics, which cover either the calendar year or the fiscal year ending in the calendar year, are for hospitals which provide care for chronic patients although also receiving patients for short periods of time for observation and diagnosis. The statistics on veterans' hospitals are adjusted figures based on tabulations prepared by the Veterans Administration and cover veteran neuropsychiatric patients under the care of the Veterans Administration in federal hospitals of all types. While the figures for state hospitals and for veteran neuropsychiatric patients are substantially complete, reports were not received from an appreciable number of county and private mental hospitals. The over-all coverage, in terms of admissions, is estimated to be between 90 and 95 per cent complete.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

State Medical Election.—At the California Medical Association meeting in San Francisco April 11-14, Dr. R. Stanley Kneeshaw, San Jose, was chosen president-elect and Dr. E. Vincent Askey, Los Angeles, was installed as president.

Establish Section of Allergy.—An Allergy Section of the California Medical Association, to be known as the California Society of Allergy, was organized April 11 by thirty allergists of the state in San Francisco. Dr. Willard S. Small, Pasadena, was elected temporary chairman and Dr. Frank G. Crandall Jr., Los Angeles, temporary secretary. The new section will hold meetings in conjunction with the annual meetings of the California Medical Association. Physicians interested in allergy are invited to attend.

CONNECTICUT

Ferris Lecture.—The eleventh Harry Burr Ferris Memorial Lecture of the Yale Medical Society was given by Melvin H. Knisely, Ph.D., Chicago, May 12, on "Sludged Blood."

Personal.—Dr. John F. Fulton, chairman, Yale University School of Medicine department of physiology, will deliver the William Withering Memorial Lectures at the University of Birmingham, England, June 7-10 on frontal lobotomy. He will also receive the honorary doctor of science degree from the University of Birmingham on July 3. The Withering lectures were established in honor of the graduate of the school who discovered the action of digitalis in 1785.

COLORADO

Lectureship in Surgery.—An annual lectureship in surgery for the University of Colorado Medical School has been established by Dr. Oscar T. Clagett, 1933 alumnus, now chief of the section on thoracic surgery at the Mayo Clinic, Rochester, Minn. The first lecturer will be Dr. Owen H. Wangensteen, professor of surgery at the University of Minnesota.

Postoperative Care of Cancer Patients.—Sands House, Denver, formerly operated for the care of tuberculous women, reopened on March 22 to care for victims of cancer in the Rocky Mountain region. It will accommodate 48 patients in its two wards and twenty private and semiprivate rooms. Operated as a nonprofit association with a staff of twenty members, it is open to men and women patients of all ages on referral by a member of the Colorado State Medical Society. Postoperative care will be provided patients who are unable to secure it in hospitals and private homes.

ILLINOIS

Play Day.—The Champaign County Medical Society is making plans for their "Play Day" on June 10, an afternoon and evening affair to which all physicians in the surrounding counties are invited. There will be golf and other games in the afternoon and a nonscientific dinner in the evening.

Postgraduate Conference.—The Postgraduate Education Committee of the state medical society will hold a postgraduate conference at the Mineral Springs Hotel, Alton, June 3. The session will open with a luncheon sponsored by the Madison County Medical Society. Physicians participating in the program are: Wayne W. Flora, Chicago, anal fissure and fistula; Joseph N. Rappaport, Evanston, behavior problems of early childhood; Philip Thorek, Chicago, preoperative and postoperative therapy; Claude N. Lambert, Chicago, principles of fracture treatment, Walter F. Dillon, Chicago, cancer of the cervix and endometrium; Robert S. Berghoff, Chicago, coronary disease; Thomas D. Masters, Springfield, management of diabetes during pregnancy; Frederick H. Falls, Chicago, antepartum hemorrhage, and Percy E. Hopkins, Chicago, president, state medical society, Illinois prepayment medical care plan. Dr. Harold M. Camp, Monmouth, secretary of the state society, will speak at the banquet on "Necessity for a Cooperative Program in Providing Medical Care."

Chicago

Dr. Phemister Awarded Honorary Fellowship.—Dr. Dallas B. Phemister, chairman and professor of the department of surgery, University of Chicago, was recently awarded the honorary fellowship of the Royal College of Surgeons of England for outstanding contributions to the pathology of surgical shock and lesions of the bones and joints.

Research on Nucleic Acids.—The American Cancer Society, Inc., has awarded a grant of $18,935 to the department of pathology of the University of Illinois College of Medicine for an investigation of nucleic acids and amino acids in relation to cellular growth. Dr. Isidore Gersh, associate professor of pathology, will serve as the principal investigator.

Cancer Research Hospital.— Construction of the University of Chicago's new cancer research hospital, adjoining the west wing of the University Clinics, was started May 3. The estimated cost will be $2,000,000. The major part of the seven story building will consist of laboratories and facilities for research. Two floors will provide fifty-two beds for patients; another floor will be devoted to outpatients.

KANSAS

Premarital Examinations Lower Marriage Rate.—The Kansas State Board of Health reports that Kansas experienced a 45 per cent drop in the marriage rate for 1947 as compared to 1946, most of which must be attributed to the decrease in marriages following the new marriage laws effective in July 1947. There were only 1,799 marriages recorded in December 1947 as compared with 5,891 for December of the previous year.

MAINE

Cancer Laboratory Fund.—A committee under the chairmanship of J. Anthony Probst, New York, has been organized to raise $1,500,000 for reconstruction and maintenance for five years of the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, that was destroyed last October by forest fires. Dr. Clarence C. Little is chairman of the board of trustees of the laboratory.

MARYLAND

Mental Hygiene Department Established.—A Division of Mental Hygiene has been functioning within the Maryland State Department of Health since January 7. Clinics are being held in seven counties, and plans are under way to establish services in two additional counties. This psychiatric program has been made possible through federal funds allotted to Maryland through the U. S. Public Health Service. The Public Health Service also assigned Dr. Kenneth B. Jones to this state as chief of the

Division of Mental Hygiene. Clinics provide services to all age groups in areas where no other psychiatric diagnosis or treatment is available. Patients are referred by courts, schools, welfare organizations, social service agencies, children's agencies, health officers and private physicians. Persons who come of their own accord because they recognize their needs are also accepted. In addition to the regular part time clinics held in cooperation with the county health departments, there is a full time, all purpose clinic established in Prince Georges County by the U. S. Public Health Service.

MICHIGAN

Annual Galen Lecture.—The 1948 annual lecture arranged by the Galen's Honorary Medical Society at the University of Michigan Medical School, Ann Arbor, was recently delivered by Dr. Stephen Rothman, professor of dermatology and syphilology, University of Chicago School of Medicine, on "Reactions of the Skin to Sunlight and Methods of Protection with Particular Reference to Para-Aminobenzoic Acid." Dr. Rothman spent one week at the university as visiting professor.

Final Checks from Kellogg Foundation.—The W. K. Kellogg Foundation is completing the plan on public health programs that it has underwritten since the early thirties in Allegan, Barry, Branch, Calhoun, Eaton, Hillsdale and Van Buren counties. Withdrawal has been spread over five years. Payments total $52,683.94 and bring to $2,455,091.27 the amount contributed by the foundation to establish and support local health departments. This support was part of the broad foundation program referred to as the Michigan Community Health Project. Field training programs for physicians, dentists, public health engineers, health educators and students in other fields will continue according to a second five year plan developed in 1947. A total of 1,384 persons have had field training experience in the seven counties in the training program to which the foundation has contributed $315,000 since 1933.

MINNESOTA

Johnston Lecture.—David P. C. Lloyd, Ph.D., Rockefeller Institute for Medical Research, New York, delivered the fourth annual John B. Johnston Lecture at the University of Minnesota Medical School, Minneapolis, May 19, on "Monosynaptic Reflexes and the Myostatic Unit." The lectures were established at the university in honor of the former dean of the college of science, literature and the arts, who died in 1939.

NEBRASKA

Memorial to Dr. Conlin.—At the annual meeting of the West Central Diabetes Association on March 16 a resolution was passed to establish a memorial award for the late Dr. Frank Conlin, its founder and first president. The award will be given annually for achievement in the field of diabetes. New officers elected at this meeting are all Omaha physicians: Morris Margolin, president: Charles R. Hankins, secretary, and Michael Crofoot, treasurer.

NEW MEXICO

Cancer Refresher Course.—One hundred and nineteen registrants, representing four states, were among the physicians and trained laymen who attended the refresher course on the diagnosis and treatment of cancer in Santa Fe April 15, sponsored by the New Mexico Division of the American Cancer Society, the Santa Fe County Medical Society and the Santa Fe Clinic, Inc. Among the speakers were: Drs. Roscoe R. Spencer, U.S. Public Health Service, Bethesda, Md.; Maurice N. Richter, New York, Herbert Willy Meyer, New York; Juan A. del Regato, Columbia, Mo., and Philip Rosenblum, Chicago.

Annual Meeting of State Medical Society.—The New Mexico Medical Society will hold its annual meeting at the Elks Club, Los Vegas, June 3-5 under the presidency of Dr. Victor K. Adams, Raton. Out of state speakers will be:

Jacob A. Bargen, Rochester, Minn., Management of Lesions of the Small Intestine.
Charles E. Shannon, Chicago, Injuries of the Head.
Morris Fishbein, Chicago, Editor, THE JOURNAL, Trends in Medical Legislation.
Fred Shapiro, Chicago, Intracapsular and Extracapsular Fractures of the Hip.
Earl E. Ewert, Boston, Treatment of Cancer of the Bladder.
Arnold D. Tuttle, Chicago, Comfort Aloft.
William T. Carlisle, Chicago, Forewarning and Forearming in Obstetrics.
John A. Lichty, Denver, Rheumatic Fever.
M. H. Peterson, Chicago, Status of Socialized Medicine.

The annual dinner will be held Friday at 7:30 p.m. Dr. Fishbein will give the address on "The Medical Hucksters."

NEW YORK

Postgraduate Lecture—The Medical Society of the State of New York in cooperation with the New York State Department of Health has arranged a Postgraduate lecture for the Seneca County Medical Society at the Armitage Tea Room, Seneca Falls, May 27 at 2:30 p.m. Dr. Paul C. Clark, Syracuse, will speak on "Recent Advances in Therapeutics."

Emergency Service in Erie County.—Erie County has established a round the clock emergency medical service whereby an inquirer is given the telephone numbers of several physicians available at that particular hour when he cannot locate his own physician. In the first nineteen days of operation ninety-nine calls were handled, of which eighty-seven were classed as emergencies.

Establish Toxicology Division.—The University of Buffalo School of Medicine has established a toxicology division which will be supported jointly by the university and the County of Erie. The unit will work closely with city and county authorities, with hospitals and with industry in the determination of poisons. Director of the toxicology division is Dr. Niels C. Klendshoj, associate in pathology, working under Dr. Kornel Terplan, head of the department of pathology. Mr. Milton Feldstein, who had experience in this field at Bellevue Hospital, New York, and in the Army Sanitary Corps, was brought here to assist in this work. The Buffalo General and Meyer Memorial hospitals already have working arrangements with the laboratory, and efforts are under way to enlist the cooperation of other hospitals.

New York City

Dedicate Hospital Wing.—Dedication ceremonies were held for the $1,000,000 McNally Pavilion, a new wing of St. Clare's Hospital, April 18, making capacity of the hospital four hundred and forty-three beds. The wing is a memorial to Mr. and Mrs. Michael J. McNally and Miss Marguerite E. McNally, parents and sister of State Supreme Court Justice James B. McNally.

Dr. Woolley Receives Award.—The first research award of the American Pharmaceutical Manufacturers Association, which met in Havana, Cuba, April 12-17, was presented to Dilworth W. Woolley, Ph. D., aged 33, a blind associate member of the Rockefeller Institute. By his study of the antimetabolite of pellagra he has contributed to public health in those Latin American countries where pellagra has long been prevalent.

Annual Jones Lecture.—Sir Reginald Watson-Jones, British orthopedic surgeon, will deliver the eighteenth annual Sir Robert Jones Lecture at 8:30 p.m. Monday, May 24, at the Hospital for Joint Diseases on "Death and Growth of Bone." The lecture is part of a three-day Alumni Conference of the hospital, which will be held from May 24-26. Sir Reginald is the director of orthopedic and accident service of the London Hospital, London, as well as chief civilian consultant in orthopedic surgery to the Royal Air Force. The Jones lectures were established in 1930 in honor of the man who many consider the father of modern orthopedics. Sir Robert died in 1933.

Dr. Rousselot Appointed Clinical Professor. —Dr. Louis M. Rousselot, associate in surgery at Columbia University College of Physicians and Surgeons, has been appointed professor of clinical surgery at New York University College of Medicine and director of surgery at St. Vincent's Hospital. Dr. Rousselot will devote his full time as director of surgery at St. Vincent's Hospital, beginning August 1. Dr. Rousselot received his medical degree from Columbia University College of Physicians and Surgeons in 1927. He has been affiliated with Babies' Hospital since 1934, has been assistant attending surgeon at Presbyterian Hospital since 1930 and chief of the surgical clinic at Vanderbilt Clinic from 1939 to 1948.

Project to Study Job Ailments. — The Columbia University School of Public Health and Goodwill Industries of New York, Inc., have initiated research to help crippled persons by an accurate scientific analysis of their disability and the jobs they can do. The program will be set up at the "fatigue laboratory" in the workshop of Goodwill Industries. Columbia University will furnish physicians and nurses to conduct the program and will use it as a graduate training center. Dr. Leonard J. Goldwater, professor of industrial hygiene and director of instruction and research, said that all Columbia students in industrial medicine and the majority of the third year medical students in the College of Physicians and Surgeons will be assigned to Goodwill for instruction. The program was made possible by a gift of $25,000 from the Milbank Memorial Fund.

OREGON

State Health Council.—The Council of the Oregon State Medical Society at its meeting April 3 voted to sponsor an Oregon State Health Council and directed the Committee on Public Health, with Dr. Leslie S. Kent, Eugene, chairman, to make plans for its organization. Over a year ago the council issued a recommendation that all component societies assume the leadership in establishing countywide health councils. The Committee on Public Health will also assume responsibility for stimulating and assisting county council development. The Multnomah County Medical Society has sponsored a health council for nearly two years, and one is being organized in Malheur County, also under leadership of the county medical society.

PENNSYLVANIA

Fifty Year Practioners.—The first councilor district of the Medical Society of the State of Pennsylvania and the Woman's Auxiliary held a testimonial dinner May 19 to honor twenty-three physicians who have been in practice for fifty years. They are Oscar E. Boericke, Robert Boyer, Harry K. Carey, Frank A. Craig, George S. Crampton, John M. Cruice, Damaso deRivas, Harry M. Eberhard, Wilfred B. Fetterman, Charles R. Haig, Eugene T. Hinson, Henry C. F. Kellner, Richard W. Larer, Morris V. Leof, Catharine MacFarlane, Albert C. Menger, Charles F. Mitchel, George E. Pfahler, Herbert J. Smith, Stephen E. Tracy, George W. Truitt, Milton N. White and Nathaniel S. Yawger. Dr. Elmer Hess, Erie, president of the state medical society, made the presentations. The dinner address was given by Dr. Edward Bortz, Philadelphia, President of the American Medical Association, on "Mechanism and Humanism in Medicine."

Philadelphia

Cancer Hospital Dedicates Building.—The James Harvey Gravell Supervoltage Building, a part of the American Oncologic Hospital, was dedicated recently in Philadelphia. The building was presented to the hospital by Leon R. Cherksey, president of the American Chemical Paint Company, in memory of the late James Harvey Gravell, founder of the company. The reinforced concrete walls average 27 inches in thickness. The x-ray machine, capable of being stepped up to 5,000,000 volts, was presented at the same time by L. D. Cassett, retired Philadelphia businessman, in memory of his mother.

Books for War Devastated Countries.—The Association of Internes and Medical Students at Woman's Medical College of Pennsylvania has inaugurated a project of sending medical books and journals to war-devastated countries. They have sent 2,000 pounds (907 Kg.) to Prague, Czechoslovakia, to be distributed there through the Unitarian Service Committee or the International Students Union, and 2,000 pounds to China through the China Aid Council in New York. Used instruments are also urgently needed, as well as funds for drugs and vitamins. Any journals or used instruments sent to the Association of Internes and Medical Students at Woman's Medical College will be packed and shipped directly by the organization.

GENERAL

Group for the Advancement of Psychiatry.—About a hundred and fifty members of the American Psychiatric Association have organized a group for the advancement of psychiatry, and subcommittees have been appointed. For information write to Dr. Henry Brosin, Secretary, Group for the Advancement of Psychiatry, c/o University of Chicago, Chicago.

New England Health Institute.—The 1948 session of the New England Health Institute is to be held at the University of Massachusetts, Amherst, June 16-18, as a joint session with the Massachusetts Public Health Conference. University rooming and and dining facilities will be available to delegates from official and voluntary health agencies throughout the area.

Congress on Orthopaedic Surgery and Traumatology.—The Fourth Congress of the International Society of Orthopaedic Surgery and Traumatology will be held in Amsterdam, Netherlands, September 13-18. Speakers on the treatment of osteoarthritis of the hip include Padovani, France; Zahradnicek, Czechoslovakia; La Chapelle, Netherlands; Delchef, Belgium; Wiberg, Sweden; Mathieu, France, and Smith-Petersen, United States. Those discussing closed injuries to the spine are Nicoll, Great Britain; Bohler, Austria; Pais, Italy; Inclan, Cuba and San Ricart, Spain. Orthopedic surgeons in Europe at the time of the congress are invited and should notify Dr. J. Delchef, secretary general, Rue Montoyer 34, Bruxelles, Belgique; Dr. J.D. Mulder, secretary of the congress, Vondelstraat 75, Amsterdam, Pays-Bas, and Dr. Henry W. Meyerding, president of the congress, 102-110 Second Avenue, S.W., Rochester, so that hotel reservations may be made.

Special Libraries Association.—Major General Paul R. Hawley, U.S. Army Medical Corps, retired, former director of medical services of the Veterans Administration, will be the chief speaker at a luncheon of librarians in the biologic sciences and hospital and nursing librarians groups of the Special Libraries Association during the thirty-ninth annual convention of the association in Washington, D. C., June 6-12. Col. Joseph H. McNinch, Washington, D. C., director of the Army Medical Library, will be a guest at this meeting. At another joint meeting of the two groups on Thursday, June 10, Dr. Edward H. Cushing, Washington, D. C., will discuss "The Residency Program in Veterans Administration Hospitals."

Nutrition Awards.—At the annual dinner of the American Institute of Nutrition, Atlantic City, N. J., March 16, the following awards were made: 1. The Mead Johnson and Company Award for work on vitamin B complex was presented to Fritz Lipmann, Ph.D., Boston, head of the Biochemical Research Laboratory of Massachusetts General Hospital "for his work on the identification of pantothenic acid as a component of coenzyme A and to the recognition of its biochemical role in enzymatic acetylation and in the biological oxidation of acetic acid." Dr. Lipmann received the Carl Neuberg Medal of the American Society of European Chemists and Pharmacists for this same research contribution. 2. The Borden Award for distinctive research which has emphasized the nutritive significance of the components of milk or of dairy products was presented to Charles A. Cary, Riverdale, Md., chief, Division of Nutrition and Physiology, Bureau of Dairy Industry, U. S. Department of Agriculture, for his "research concerning the influence of diet on the composition of blood and milk constituents; occurrence and losses of carotene in roughage; vitamin A potency of milk and butter and the relation of same to the quality of roughage; unidentified nutrients necessary for normal growth which are found in milk and milk products, and in certain other foods and feeds."

Society for Vascular Surgery.—The Society for Vascular Surgery will hold its second annual meeting June 20 at the Stevens Hotel, Chicago, under the presidency of Dr. Arthur W. Allen, Boston. The program includes:

Arthur W. Allen, Boston, Venous Thrombosis and Pulmonary Embolism.
John Homans, Boston, Venous Thrombosis in the Lower Limbs.
Michael E. DeBakey and E. W. Alton Ochsner, New Orleans, Gangrene as a Complication of Thrombophlebitis.
Claude S. Beck, Cleveland, Revascularization of the Heart.
Geza de Takats, Chicago, Corticoadrenal Factor in Essential Hypertension.
Herman E. Pearse, Rochester, N. Y., Cellulose and Cellophane Products in Vascular Surgery.
Daniel C. Elkin and Frederick W. Cooper Jr., Atlanta, Ga., Radioactive Isotopes in the Investigation of Vascular Disease.
Ross Veal, Washington, D.C., Surgical Treatment of Hyperhidrosis.
Frederick A. Coller, Kenneth N. Campbell, and Robert E. L. Berry, Ann Arbor, Mich. and Bradley M. Harris, Ypsilanti, Mich., Lumbar Sympathectomy in Advanced Arteriosclerosis Obliterans.
Reginald H. Smithwick and George P. Whitelaw, Boston, Effect of Sympathectomy on Heart Rate.
Louis G. Herrmann and Joseph A. Buchman, Cincinnati, Complications from Injuries to Arteries.
Arthur H. Blakemore, New York, Portacaval Anastomosis for Portal Hypertension.
I. Mims Gage, New Orleans, Cardiac Decompensation Secondary to Arteriovenous Fistula.
Norman E. Freeman, San Francisco, A Technic for Division and Suture of the Patent Ductus Arteriosus.
Robert R. Linton, Brookline, Mass., Treatment of Arteriosclerotic Popliteal Aneurysm.

Report of Interim Commission.—At the fifth session of the World Health Organization Interim Commission in Geneva, Switzerland, January 22-February 7, the report on the activities of the commission since its establishment at the International Health Conference in New York in 1946 was approved for submission to the World Health Assembly in Geneva June 24 - July 31. The proposed 1949 budget for the World Health Organization amounts to $6,367,995, of which $1,071,690 is allotted for fellowships, medical literature, teaching equipment and emergency medical supplies. Major recommendations by the commission to the first World Health Assembly and W.H.O. include the following: (1) Continuation of medical cooperation with accredited governmental and nongovernmental agencies. It recommends that the World Health Organization serve in an advisory capacity in the fields of public health and medicine with the International Civil Service Advisory Board, the United Nations Social Commission, the U. N. Scientific Conference for the Conservation and Utilization of Resources, International Labor Organization United Nations Educational, Scientific Cultural Organization. It recommended that aid be continued to the International Children's Emergency Fund in launching an antivenereal campaign among children and woman through mass treatment with penicillin; (2) Continuation of the epidemologic service and revision of existing sanitary conventions; (3) continuation of the work of biologic standardization and unification of pharmacopeias, (4) creation of an international influenza center, which is now well under way; (5) revision of the international lists of diseases and causes of death; (6) appointment of a designated representative of countries not having a scientific attaché in the United States for distribution of radioactive isotopes by the United States; (7) promotion of health protection for children; (8) programs of malaria, tuberculosis and venereal disease control, and maternal and child health; (9) continuation of field services and medical mission sent under UNRA to various countries.

Marriages

ALBERT HEWETT COONS, Boston, to Miss Phyllis E. F. Watts of Milton in December 1947.

FORREST CLARENCE ORMAN, Roanoke, Va., to Miss Mary Virginia Leonard of Galax, Dec. 6, 1947.

JOHN E. GOTTSCH, Shenandoah, Iowa to Miss Rachel E. Updegraff of Sigourney in New Orleans, January 31.

CORRECTIONS

Preliminary Program of Scientific Assembly—In THE JOURNAL, May 15, in the program of the Section on Ophthalmology, Wednesday, June 23, the title of the fourth paper, by Theodore H. Ingalls, "Epidemiology of Encephalo-Ophthalmic Dysplasia," was omitted; in the program of the Section on Pediatrics, June 23, the last name among the authors of the fourth paper should be "Herman" not "Herbert" N. Bundesen; in the Section on Pathology and Physiology, Friday, June 25, the authors of next to the last paper should have read: "Lester M. Morrison, Lillian M. Hall, Albert L. Chaney and William Gonzales."; in the Section on Gastro-Enterology and Proctology, June 23, the name of one of the authors of the last paper should have been "D. F. Richfield" instead of "Richkield;" in the Section on Miscellaneous Topics, Session on Physical Medicine, the third paper to be presented in the Panel Discussion on "Physical Treatment of Poliomyelitis" by Robert L. Bennett, Warm Springs, Ga., was omitted.

Deaths

Hill Hastings ⊕ Los Angeles; born in Elizabethtown, Ky., Jan. 9, 1874; University of Virginia Department of Medicine, Charlottesville, 1895; an Affiliate Fellow and in 1915-1916 chairman, Section on Laryngology, Otology and Rhinology of the American Medical Association; emeritus professor of surgery (otology, rhinology and laryngology), University of Southern California School of Medicine; member and formerly vice president of the American Laryngological Association; member and past president of the Los Angeles Society of Oto-Laryngology and the American Laryngological, Rhinological and Otological Society; member of the Pacific Coast Oto-Ophthalmological Society; assistant surgeon, U.S. Public Health Service, from 1897 to 1902; captain in the medical corps of the U.S. Army during World War I; affiliated with Los Angeles County General Hospital, Children's Hospital and the Good Samaritan Hospital, where he died February 14, aged 74, of bronchopneumonia.

William Lowndes Peple ⊕ Richmond, Va.; born in Manchester, Va., Dec. 5, 1875; University College of Medicine, Richmond, 1897; emeritus professor of clinical surgery at the Medical College of Virginia; member of the founders' group of the American Board of Surgery; member and formerly vice president of the Southern Surgical Association and of the Medical Society of Virginia; fellow of the American College of Surgeons; past president of the Richmond Academy of Medicine and the Tri-State Medical Association; served in France during World War I; for many years associated with St. Luke's Hospital; died February 7, aged 73, of cerebral hemorrhage.

Fred Franklin Attix ⊕ Lewistown, Mont.; born in Detroit Lake, Minn., Aug. 8, 1878; University of Pennsylvania Department of Medicine, Philadelphia, 1900; past president of the Montana State Medical Association; member and formerly vice president of Western Surgical Association; member of the American Association for the Surgery of Trauma and the Radiological Society of North America, Inc.; member of the founders' group of the American Board of Surgery; president of staff, St. Joseph's Hospital; founder and president, Attix Private Clinic Hospital; district surgeon, Chicago, Milwaukee, St. Paul and Pacific Railroads; died February 9, aged 69;

Harry Kraylor Born ⊕ Los Angeles; born in Indianapolis, Aug. 9, 1886; Indiana University School of Medicine, Indianapolis, 1908; associate clinical professor of surgery at the College of Medical Evangelists; member of the founders' group of the American Board of Surgery; member of the Western Surgical Association; fellow of the American College of Surgeons; affiliated with Presbyterian Hospital-Olmsted Memorial; attending surgeon, Los Angeles County Hospital and member of the senior staff of the California Hospital; died in the Methodist Hospital February 8, aged 61, of cerebral hemorrhage and essential hypertension.

Louis Abraham Feldman ⊕ Brooklyn; born in Brooklyn in 1890; University and Bellevue Hospital Medical College, New York, 1914; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; formerly affiliated with the Indian Service in White Earth, Minn.; fellow of the American College of Surgeons; affiliated with the Brooklyn Hebrew Home and Hospital for Aged and the Jewish Hospital; attending ophthalmologist to Sea View Hospital, Staten Island; died in Palm Beach, Fla., February 2, aged 57, of cerebral hemorrhage.

Alfred Franklin Hocker ⊕ New York; born in Audubon, Iowa, April 29, 1902; University of Louisville (Ky.) School of Medicine, 1926; assistant professor of radiology at the Cornell University Medical College; specialist certified by the American Board of Radiology, Inc.; member of the American College of Radiology and the American Radium Society; director of the tumor clinic at the Cornwall (N.Y.) Hospital; on the staffs of the Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York Hospital and the White Plains (N.Y.) Hospital; died February 12, aged 45, of coronary thrombosis.

Isaac Spencer Finney Dodd ⊕ Pittsfield, Mass.; born in Hangchow, China, Feb. 28, 1868; University of the City of New York Medical Department, New York, 1890; member of the founders' group of the American Board of Surgery; fellow of the American College of Surgeons; past president of the Berkshire District Medical Society; served during World War I; on the staff of the Fairview Hospital in Great Barrington, House of Mercy and St. Luke's Hospital; died in the Palmer Memorial Hospital, Boston, January 30, aged 79, of carcinoma of the colon.

John Wilson Poucher, Poughkeepsie, N.Y.; born in Claverack, N.Y., July 24, 1859; Albany (N.Y.) Medical College, 1883; instrumental in the organization of the Dutchess-Putnam Medical Society, which he served as president; fellow of the American College of Surgeons; veteran of the Spanish-American War; for many years affiliated with the Vassar and St. Francis hospitals; served as manager and president of the board of the Hudson River State Hospital; for many years secretary of the Dutchess County Historical Society; died February 16, aged 88, of arteriosclerosis.

Frank E. Andrews, Norfolk, Va.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1904; found dead February 18, aged 80.

Francis Richard Anthony, Maryville, Mo.; Missouri Medical College, St. Louis, 1898; member of the American Medical Association and in 1907 member of its House of Delegates; past president of the Nodaway County Medical Society; died in St. Francis Hospital February 16, aged 75, of a hip fracture received in a fall.

Glenn Wyatt Arthurs, Niagara Falls, N.Y.; University of Buffalo School of Medicine, 1918; member of the American Medical Association; served during World War I; on the staffs of the Memorial and Mount St. Mary's hospitals; died February 10, aged 52, of coronary thrombosis.

Lewis Harlan Athon, Los Angeles; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; member of the American Medical Association; on the staff of the Methodist Hospital; died February 26, aged 60, of carcinoma.

Harold Woods Baker, Orford, N.H.; Harvard Medical School, Boston, 1906; fellow of the American College of Surgeons; at one time an assistant at the Mayo Clinic in Rochester, Minn.; served on the faculty of his alma mater and on the staffs of the Charlesgate Hospital in Cambridge, Mass., and the Free Hospital for Women in Brookline, Mass.; died February 14, aged 66, of hypertension and cerebral thrombosis.

Irving Sydnor Barksdale, Greenville, S.C.; Yale University School of Medicine, New Haven, 1923; member of the American Medical Association; at one time on the faculty of the Medical College of the State of South Carolina in Charleston; for many years city health officer; died in St. Francis Hospital February 10, aged 50, of cerebral hemorrhage.

Julius Peter Karp, Hartford, Conn.; Maryland Medical College, Baltimore, 1913; Kansas City College of Medicine and Surgery, 1917; died in the Hartford Hospital February 14, aged 69, of coronary disease.

Felix Max Katar, Philadelphia; Maryland Medical College, Baltimore, 1910; member of the American Medical Association; died Dec. 7, 1947, aged 77, of coronary sclerosis.

Joseph Adelbert Keithley, Palmyra, Wis.; Illinois Medical College, Chicago, 1902; past president of the Jefferson County Medical Society; served during World War I; died in Lakeland, Fla., January 15, aged 73, of coronary thrombosis.

Arthur Edward Lamley ⊕ Blissfield, Mich.; Medico-Chirurgical College of Philadelphia, 1909; served as health officer and county coroner; died in Bixby Hospital, Adrian, February 10, aged 62, of primary atypical pneumonia.

Erwin Last ⊕ New York; Universität Bern Medizinische Fakultät, Switzerland, 1919; member of the New York Post Graduate Hospital; died February 12, aged 52, of coronary thrombosis.

Eugene Joseph Leopold ⊕ Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1905; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; on the staffs of the Johns Hopkins and Sinai hospitals; died January 14, aged 68.

Emry Franklin Lewis, Ada, Okla. (licensed in Oklahoma under the Act of 1908); died January 13, aged 82.

Philip A. Ley, Donora, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1904; also a graduate in pharmacy; member of the American Medical Association; served as school director, member of the board of health and medical examiner for the public schools; died February 5, aged 68, of carcinoma of the liver.

Walter Mathews Lott ⊕ Nashville, Tenn.; Emory University School of Medicine, Atlanta, 1918; served during World War I; died February 15, aged 53, of carcinoma of the stomach.

William Barker McCreery ⊕ Tacoma, Wash.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1902; fellow of the American College of Surgeons; on the staffs of the Tacoma General and St. Joseph's hospitals; died Dec. 28, 1947, aged 73, of coronary disease.

Wilbur Washington Mackenzie, Los Angeles; College of Physicians and Surgeons, Chicago, 1896; fellow of the American College of Surgeons; died recently, aged 78.

John M. Meadows, Vidalia, Ga.; University of Georgia Medical Department, Augusta, 1888; member of the American Medical Association; died January 22, aged 86.

Walter McDonald Merritt, Boyle, Miss.; Vanderbilt University School of Medicine, Nashville, Tenn., 1906; member of the American Medical Association; served during World War I; formerly assistant superintendent of the State Insane Hospital, Asylum; died in Baptist Hospital, Memphis, Tenn., February 1, aged 65, of heart disease.

Joseph Bennedick Metzger, Toledo, Ohio; Ohio State University College of Medicine, Columbus, 1915; member of the staff of St. Vincent's Hospital; died January 24, aged 64.

David G. Miller, Doraville, Ga.; University of Georgia Medical Department, Augusta, 1887; died January 20, aged 84.

F. A. Minnis, Phoenix, Ariz.; Tennessee Medical College, Knoxville, 1907; died in the Good Samaritan Hospital February 7, aged 74.

Robert Sterling Montgomery ⊕ South Hill, Va.; Medical College of Virginia, Richmond, 1934; physician to the Selective Service Board during World War II; died February 9, aged 37, of amyotrophic lateral sclerosis

Julia Morgan, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1920; diplomate of the National Board of Medical Examiners; associate in medicine at her alma mater formerly a medical missionary in China, where she was on the faculty of the Cheeloo University School of Medicine, Tsinan, Shantung; received the honorary degree of doctor of science from Dickinson College, Carlisle, Pa.; died in the University of Pennsylvania Hospital January 26, aged 56, of coronary sclerosis.

Thomas Morgan, Alton, Ill.; Baltimore Medical College, 1895; died in St. Joseph's Hospital February 1, aged 76, of injuries received when struck by an automobile while he was crossing the street.

Ernest Mosby, Waynesboro, Va.; Medical College of Virginia, Richmond, 1899; died February 5, aged 71.

William Archibald Murray, Scranton, Pa.; Jefferson Medical College of Philadelphia, 1929; member of the American Medical Association; affiliated with Mercy Hospital, where he died February 14, aged 53, of heart disease.

Sverre Oftedal ⊕ Glendale, Calif.; Rush Medical College, Chicago, 1911; fellow of the American College of Surgeons; on the staff of the Physicians and Surgeons Hospital; died February 4, aged 64.

Francis Michael Pare, Worcester, Mass.; Georgetown University School of Medicine, Washington, D.C., 1931; member of the New England Obstetrical and Gynecological Society and the American Medical Association; affiliated with St. Vincent's Hospital, where he died January 28, aged 45, of lymphoblastoma.

Ralph Wait Parsons, Seattle; College of Physicians and Surgeons, medical department of Columbia College, New York, 1890; at one time physician in charge of the Greenmont-on-the-Hudson in Ossining, N.Y., where he practiced medicine and was a member of the library board; died January 29, aged 80, of carcinoma of the prostate.

Judson Philbrook Pendleton ⊕ Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1898; fellow of the American College of Physicians; past president of the Brooklyn Pediatric Society; affiliated with the Coney Island, Kingston Avenue, Cumberland Street and Methodist hospitals; died January 21, aged 74.

Anthony Salvatore Pendola, Holyoke Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1920; member of the American Medical Association; served during World War I; formerly assistant physician affiliated with the Providence and Holyoke hospitals; died January 10, aged 57, of carcinoma.

Clarence George Perry, St. Paul; University of Minnesota College of Medicine and Surgery, Minneapolis, 1909; member of the American Medical Association; served during World War I; died in Pharr, Texas, January 6, aged 62, of coronary occlusion.

Thomas Adolphus Peterson ⊕ Wynne, Ark.; University of Tennessee College of Medicine, Memphis, 1932; died February 3, aged 40.

Harold Ashton Pingree, Portland, Maine; Medical School of Maine, Portland, 1901; member of the American Medical Association; formerly on the faculty of his alma mater; fellow of the American College of Surgeons; served with the U. S. Public Health Service; affiliated with the Maine General and Children's hospitals; died January 7, aged 70, of heart disease.

Eva Prescott, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; died February 3, aged 71.

Arthur Augustus Rankin, Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1900; died in the Fairview Hospital January 4, aged 75, of a rupture of the left cardiac ventricle.

Maten Floyd Rathbun, Hanover, Ill.; Chicago Medical School, 1921; served during World War I; died January 25, aged 53.

Frederick Bangs Rawlings ⊕ Sandersville, Ga., University of Pennsylvania School of Medicine, Philadelphia, 1915; member of the Southeastern Surgical Congress and the Southern Medical Association; past president of the Washington County Medical Society; fellow of the American College of Surgeons; served overseas with the Emory Unit during World War I; senior surgeon of Rawlings Sanitarium; died in the Emory University Hospital, Atlanta, January 16, aged 58, of carcinoma of the pancreas.

Claude Everett Richmond ⊕ Colorado Springs, Colo.; Barnes Medical College, St. Louis, 1909; past president of the El Paso County Medical Society; specialist certified by the American Board of Anesthesiology, Inc.; member of the American Society of Anesthesiology; affiliated with the Glockner-Penrose Hospital, Memorial Hospital and the St. Francis Hospital and Sanatorium; died February 4, aged 60, of coronary thrombosis.

Ralph Weller Rucker, Bartlesville, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1936; member of the American Medical Association; specialist certified by the American Board of Otolaryngology; past president of the Washington-Nowata Counties Medical Society; served during World War II; died in Norman January 27, aged 37, of injury received in a fall.

Emil Albin Rundquist ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1898; fellow of the American College of Surgeons; formerly on the faculty of the New York Post-Graduate Medical School and Hospital, Columbia University; died in January, aged 72.

Charles Morehead Smith, Dixon, Ky.; Missouri Medical College, St. Louis, 1885; member of the American Medical Association; secretary of the Webster County Medical Society; for many years health officer of Webster County; died in the Vanderbilt Hospital, Nashville, Tenn., January 28, aged 84, following an operation for cholelithiasis.

Herbert Lee Sproul, Waverly, N.Y.; Long Island College Hospital, Brooklyn, 1895; died January 25, aged 78, of arteriosclerotic heart disease.

Fred Wilson Standefer ⊕ Lubbock, Texas; University of Texas School of Medicine, Galveston, 1917; served overseas during World War I; associated with the West Texas Hospital and Clinic; died January 22, aged 54, of heart disease.

Gordon Livingston Todd, Princeton, W. Va.; University of Virginia Department of Medicine, Charlottesville, 1910; member of the American Medical Association; fellow of the American College of Surgeons; owner and medical director of the Mercer Memorial Hospital; died February 3, aged 63, of heart disease.

Thomas Tilghman Tolson, Longstreet, La.; Chicago College of Medicine and Surgery;. 1914; died at the Tri-State Hospital in Shreveport January 22, aged 57.

William Porter Verity, Two Buttes, Colo.; Rush Medical College, Chicago, 1879; member of the American Medical Association; for many years county coroner; died in the Sacred Heart Hospital, Lamar, January 13, aged 94.

Paul Henry von Zierolshofen ⊕ Croghan, N. Y.; University of the City of New York Medical Department, New York, 1887; served during World War I; for many years fire chief; affiliated with the Lewis County Hospital in Lowville and St. Lawrence State Hospital in Ogdensburg; vice president of the Croghan National Bank; died January 20, aged 84, of coronary occlusion.

John A. Waggener, Humboldt, Neb.; Louisville (Ky.) Medical College, 1876; member of the American Medical Association; past president of the Richardson County Medical Society; served as county coroner; died January 23, aged 95.

John Edward Walton ⊕ Alton, Ill.; Marion-Sims College of Medicine, St. Louis, 1897; past president of the Madison County Medical Society; member and formerly chief of staff, Alton Memorial Hospital; served during World War I; died January 25, aged 80, of coronary occlusion.

Philip Carter Washburn, Morris Plains, N. J.; Columbia University College of Physicians and Surgeons, New York, 1900; an officer during World War I; for many years on the staff of the New Jersey State Hospital at Greystone Park; formerly on the staffs of the Manhattan and Kings Park State hospitals in New York; died January 10, aged 72, of coronary thrombosis.

John Cowden Welch, Bellevue, Pa.; Medico-Chirurgical College of Philadelphia, 1893; district registrar of vital statistics; founder and original staff member of St. John's General Hospital in Pittsburgh; affiliated with the Suburban General Hospital, where he died February 3, aged 80, of cerebral thrombosis and diabetes mellitus.

Benjamin Franklin Williams, Atlanta, Ga.; Atlanta College of Physicians and Surgeons, 1910; died January 8, aged 64.

Millard Lewis Wilson, Falls City, Neb.; Lincoln Medical College of Cotner University, 1896; member of the American Medical Association; served as mayor of Humboldt, as coroner and health officer of Richardson County; affiliated with Our Lady of Perpetual Help Hospital, where he died January 28, aged 80, of acute gangrenous appendicitis.

Charles F. Wixom, North Cohocton, N. Y.; University of Buffalo School of Medicine, 1892; died in the Wayland (N.Y.) Hospital January 20, aged 88, of arteriosclerosis.

John George Wurtz ⊕ Philadelphia; Hahnemann Medical College and Hospital, Philadelphia, 1907, and Jefferson Medical College of Philadelphia, 1908; specialist certified by the American Board of Pathology, Inc.; member of the American Society of Clinical Pathologists; affiliated with the Women's Homeopathic Hospital, where he died January 15, aged 62, of cerebral hemorrhage.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 16, 1948.

Blood Transfusion Service for London Hospitals

During and since the war blood transfusion has greatly developed and services have been organized all over the country. The Greater London Blood Transfusion Service, which covers London and five adjoining counties, serves fifty hospitals. The service is responsible for the supply of donors in cases in which freshly drawn blood is essential. Every call is for a definite patient (there is no blood bank), and therefore the urgency of the demand is brought home to the donor. As the service has become known, the number of calls has increased. There were 1,095 requests in 1945, 1,863 in 1946 and 2,436 in 1947. In January 1948 the number was 273. The most received in any one day was 27.

On enrollment, donors undergo medical examination, their blood is tested and grouped by the medical officer of the service, Dr. H. F. Brewer, at the pathologic department, St. Bartholomew's Hospital. The service can supply not only Rh-negative and Rh-positive donors of the A, B, AB and O groups but also donors of the rare Rh subgroups for both transfusion and research purposes. No maximum is fixed for any one donor. More than half have given blood over ten times, and more than a fourth over twenty times. One donor has served more than one hundred times, and the seventieth birthday of another was celebrated by the seventieth transfusion, though 65 is the usual age limit. The minimum period between donations is three months for men and four months for women. In only 2 of 60,000 cases has the service learned that the donor's health has suffered temporarily from the donation. But all donors are insured against ill effects and are examined after the completion of each ten transfusions. The donors are not paid for their services but are reimbursed for their expenses.

Cardiac Catheterization

At a joint meeting of the Manchester Medical and Pathological Societies Professor J. McMichael lectured on cardiac catheterization, which was introduced by Forssman in 1929. Subsequently it was used extensively in Portugal, France and Latin America to inject radiopaque substances so as to define vessels at the root of the lung. In 1941 Cournand described its use for measuring pressure in the chambers of the heart and for measuring the cardiac output by the Fick principle. Use of the method in the London Postgraduate School has been without untoward incident in 800 cases and is now spreading widely. Blood never clots on the surface of the catheter, but small pinhead thrombi occasionally form on the tip, and some may escape into the lungs, where there is good reason to believe that they are harmless. In the right ventricle the tip may excite extrasystoles, which may be harmful to patients whose cardiac condition is precarious. One death has been reported in the Netherlands in a case of gross coronary disease.

In congenital heart disease the simpler defects may often be diagnosed by cardiac catheterization. A defect of the interauricalar septum is recognized by the admixture in the right auricle of arterial and venous blood. But the selection of cases for Blalock's operation is usually made on clinical grounds. Bing's recent success in sampling blood from the coronary sinus has opened possibilities. Cardiac catheterization has come to stay.

Precautions Against Harmful Results of Atomic Research

An establishment for research on atomic energy has been installed at Harwell, on the Thames, by the government. Precautions have been taken, on the advice of the Medical Research Council's research committee on the medical and biologic application of nuclear physics, to insure that the water used is returned to the Thames free from the risk of harmful radioactivity. A certain amount of radioactivity in drinking water can be tolerated by human beings, and the Medical Research Council has laid down a tolerance for Thames water such that the effects of consumption will be negligible. About a million gallons of water will be used daily at the research station. Most of it will be for cooling plant and domestic needs. The rest will be for research purposes, some of them radioactive. A carefully controlled water system will be installed. The most highly active portion of the water will be segregated and withheld from the river. The remainder will be passed to storage tanks, where it will be (1) tested by medical officers for compliance with the agreed tolerances, (2) treated for chemical impurities, and then (3) mixed with the domestic water before being discharged into the Thames.

The system of treatment and examination has been so devised that several operations have to be carried out before the water is discharged. A new weir is being constructed at the point of discharge so that the water will be turbulently mixed with much greater quantities of river water before it joins the main stream. These safeguards have received the approval of the Ministry of Health.

Orthopedic Surgery in Rheumatiod Arthritis

At the Section of Physical Medicine of the Royal Society of Medicine Mr. A. W. Law opened a discussion on orthopedic surgery in rheumatoid arthritis and ankylosing spondylitis. He had lately spent some months at the Massachusetts General Hospital studying the methods of Bauer and Smith Petersen. He said that the orthopedic surgeon is taking a greater share in overcoming the deformities of these diseases. The team work of a physician, an expert in physical medicine and an orthopedic surgeon is necessary, and in certain cases high voltage roentgen therapy may also be required. The principle of rest is still the basis of the so-called conservative treatment of rheumatoid arthritis, but it may be harmful from the point of view of restoration of function. A careful balance must be preserved between rest and active exercise, pain being controlled if necessary by drugs. In many rheumatoid cases multiple deformities necessitate a long program of reconstructive or functional treatment. One or more revision operations may be necessary for a satisfactory end result.

Taking first the upper limb, a painful shoulder joint with deformity of adduction and internal rotation is frequent. Excision of the acromion process, with removal of subacromial bursas, eliminates the source of pain and allows free movement. Relief of pain helps to remove muscular spasm. In rheumatoid arthritis of the elbow spasm of the biceps is prominent. *Smith Petersen* has shown that the radial head may be drawn upward so as to impinge on the capitellum. Excision of the radial head overcomes such faulty joint mechanics, pain is relieved and a considerable improvement in range is obtained. When there is gross destruction or complete ankylosis excision of the lower end of the humerus and upper ends of the radius and ulna is indicated. The hip and knee joints frequently require surgical treatment on account of pain and deformity with a variable degree of ankylosis. When the patient's morale is low and the muscles wasted and fibrotic a stabilizing process such as athrodesis may be useful. The problem of bilateral stiff hips and knees may have to be faced. A reconstructive operation before fibrosis of muscles and joints has progressed too far should be performed. The technic of Smith Petersen's arthroplasty of the hip, to create all the elements of the joint, has been greatly improved by the use of the " vitallium " mold, which becomes a barrier to recurring ankylosis. Any reconstruction of the hip joint must produce a joint which is painless, stable and capable of bearing weight.

Eire Doctors Reject a State Medical Service

Evidently as a result of the British proposal, the question of a state medical service has been raised in Irish politics. A special meeting of the Medical Association of Eire has been held to discuss the White Paper on the Eire Health Act of 1947. The meeting unanimously passed the following resolutions: (1) that many of the provisions of the health act of 1947, as outlined in the White Paper, are unworkable, and (2) that the central council of the Medical Association of Eire is opposed to the taking over or direction by the state of all medical services and to the degree of state control and direction that is visualized.

Experimental Psychology: A New Journal

Increasing interest in experimental pathology has led the Experimental Psychology Group to found a new journal, the *Quarterly Journal of Experimental Psychology*. Editorial inquiries should be addressed to Mr. R. C. Oldfield, M.A., Institute of Experimental Psychology, 34 Banbury Road, Oxford, England. The Journal may be ordered, 7½ s. annually or 2 s. per issue, from W. Heffer & Sons, Ltd., 3-4 Petty Cury, Cambridge, England.

Dentists Reject National Health Service

The British Dental Association announces that the decision of the representative board to recommend members not to enter the National Health Service has been followed by meetings of nine branches at which 1,080 votes were cast against any participation in the service and only 33 in favor of entering it.

ANKARA

(From Our Regular Correspondent)

March 12, 1948

Folic Acid Therapy

A sample of folic acid came to Turkey late in 1946, and Professors Tevfik Saglam and E. Frank, of Istanbul University Hospital, were the first to apply it with excellent results in cases of pernicious anemia.

A patient was given a daily dose of four tablets of folic acid but no liver extract. Reticulocytes, which before treatment had been subnormal, increased to 18 within a week; red blood cells and hemoglobin began to increase accordingly, and the whole blood picture gradually changed. Within eighteen days the red blood cell count rose to 3,850,000, with hemoglobin 68 per cent. After that the patient was given iron and ascorbic acid. A week later the red blood cell count rose to 4,000,000, the hemoglobin level to 72 per cent. The second sternal puncture revealed a decrease of megaloblasts from 30 to 4.5. In the third myelogram on the twenty-ninth day of treatment, megaloblasts had completely disappeared. The number of white blood cells, which before treatment amounted to only 3,000, gradually increased to 7,000 with a resultant great improvement in the patient's health and disappearance of the pains. This had been attained with 500 mg. of folic acid.

Half Century of Children's Hospital

As a memorial to his beloved daughter, the Sultana Haditche, who died of diphtheria at 10 years of age, Sultan Abdul Hamid II established the Istanbul Children's Hospital, which was opened in 1898. It had six pavilions with steam heat, one hundred beds, and was erected at the cost of 40,000 pounds Turkish in gold. Ibrahim pasha, who had been in attendance when the sultana died, was appointed physician in chief. This, the only children's hospital in Istanbul, has during the republic (since 1923) been remodeled. Today it has three hundred beds and departments for every speciality. More than 100,000 persons a year come to the outpatient department. In 1933 Istanbul University was reorganized and the children's hospital became part of it, the department of pediatrics, orthopedics and urology serving as a teaching center for medical students. At present only the department of pediatrics, which is under the direction of Professor Ihsan Hilmi Alantar, serves that purpose. As soon as the children's hospital of the university is finished, it will cease to be a teaching hospital. Two years ago the Ministry of Health added a new building, a nurses' home and a training school for hospital and public health nurses. There are at present one hundred students. The course lasts three years. Under the ten year National Health Plan seven three hundred bed children's hospitals are to be erected in the principal cities and towns.

Infantile Kala-Azar

At the monthly meeting of the Istanbul Medical Society Dr. N. M. Fakacelli of the Austrian Saint George Hospital, Istanbul, reported a case of kala-azar in an infant 13 months of age. According to the mother, who lived in Istanbul on the Bosporus, the onset of fever, lack of appetite, increasing weakness and swelling of the abdomen began four months prior to the child's admission at the hospital in September 1947. Because of the mother's illness, breast feeding had been discontinued after seven months, and the child was fed cow's milk. Plasmodia were not present in the blood smear; coagulation of the blood was normal. Sternal puncture was made the next day, and leishmania were found in splenogram and myelogram. Because the child was in a critical condition and ethylstibamine ("neostibosan") was not available, antimony and potassium tartrate had to be resorted to. A blood transfusion of 30 cc. was given by the father; iron and vitamin preparations were administered. The child died of pneumonia on the seventeenth hospital day.

Dr. Fakecelli discussed the 39 cases of kala-azar which had come to his clinic in the last nine years He said that the formolgel test, Gate and Papacostas tests are a great help in arriving at the diagnosis, but they should not be relied on solely. The tests had been positive in 34 of 39 cases; and undecided in 5. The most reliable method to arrive at a true diagnosis was to search for and locate the parasites in the spleen and bone marrow. In 2 of 18 cases in which parasites had not been found either in the myelogram or the splenogram, an abundance of leishmania had been found in the spleen. Though in the myelogram of 16 patients there had been only a few Leishmania, there were an abundance in the spleen, indicating that the safest method is the splenic puncture. Of 34 patients who every other day received an intravenous injection of "neostibosan," 31 patients recovered. Because "neostibosan" was not available antimony and potassium tartrate had to be resorted to for 6 patients, of whom 3 recovered and 3 died. All 39 patients had come from the Golden Horn and the Bosporus, indicating that in these regions kala-azar is endemic and requires precautionary measures.

PARIS

(From Our Regular Correspondent)

March 30, 1948.

Blood Transfusion Centers

A new order of the Ministry for Public Health and Population pertains to blood transfusion centers. Regional centers are under the management of a director assisted by a committee consisting of nine members: (1) a specialist in blood transfusion; (2) a hematologist; (3) a dermatologist; (4) an obstetrician; (5) a surgeon; (6) a representative of blood donors; (7) a representative of the Regional Social Security Fund; (8) a representative of public or private collectives, and (9) a representative of the Syndicate of Doctors. Centers have to insure a supply of preserved blood, fluid or dry plasma, and convalescent serum to medical establishments and district transfusion centers. Regional centers will also take part in scientific research and in the education of the medical corps with regard to blood transfusion; they will cooperate with the National Institute for Hygiene. District centers under the management of public or private collectives will have a consultative committee of six members, and they will assume the recruiting of blood donors and the institution of emergency blood transfusion services.

The national center for blood transfusion is the oldest in the world, having been created in 1923 by Professor A. Tzank, the present director, and by Professors Levy-Sclal and Gosset. Located in an annex of the St. Antoine Hospital, its activities embrace arm to arm transfusions, the preparation of plasma and preserved blood, the control of reactions to transfusions, the registration of future donors and the participation in the organization of regional and departmental centers. To those actitivities add also collaboration with the Percy Hospital Army Transfusion Center. Its official paper is the monthly *Revue d' hematologie.*

Research at the National Center.—Research is progressing in various directions in the Laboratory of the National Center. Caroli and Bessis' research on hereditary erythroblastosis opens a large field of experimentation in human serology and has great scientific and practical value. Bessis and Bernard, who use the exchange transfusion in the treatment of acute leukemia, in collaboration with Buhot have perfected the technic using Diamond's catheter. After exposing a vein at the elbow, the catheter is introduced up to the venous confluent at the base of the neck. Then the blood exchange is performed by means of the two-way syringe (Tzank's type). They believe this method may be applied also in the treatment of intoxications when the poison is still in the blood and the anatomic lesions are not irreversible. Research is in progress to ascertain whether the effective substances in normal blood are carried by the corpuscles, or, if by the plasma, by what fraction of the plasma. The experiments of these and other workers show that in acute leukemia exchange transfusion only produces recovery exceptionally but in all cases prolongs the patient's life. Tzank and Andre have studied post-transfusion reactions in a series of 6,000 transfusions. They conclude that a previous injection of morphine diminishes the frequency of such reactions and that transfusions without anesthesia are practically never followed by accidents. Post-transfusion reactions occur in 15 per cent of cases. While these reactions have no relation to the rapidity of the injection, Tzank and Andre recommend that the first 30 to 40 cc. of blood be injected slowly.

RIO DE JANEIRO

(From Our Regular Correspondent)

April 9, 1948.

New Pathogenic Concept of American Trypanosomiasis

Drs. Julio Muniz and A. Penna de Azevedo, of the Oswaldo Cruz Institute, Rio de Janeiro, published a paper describing their investigation of the action of Tripanosoma cruzi, causative agent of the American trypanosomiasis, on man. Their main objective was to ascertain the possibility of causing an allergic condition by the inoculation of lysates and suspensions of dead cultures of the parasite. The experiments were performed on the rhesus monkey ((Macaca mulatta), since this animal presents, when infected, an immunologic picture similar to that of human patients suffering from trypanosomiasis.

Two monkeys received five preparatory intravenous injections of the antigen at three day intervals. It is important to emphasize the great tolerance of the rhesus monkey for high doses of the antigen. Although the sensitization of the animals was performed by intravenous injections no violent reactions occurred. Twelve days after the last preparatory injection the animals received the shock injection. One monkey was killed eight days after the shock injection, and the second thirty days after the injection. The second monkey received also three more doses after the shock injection, for a better observation of the evolution of the lesions caused by the shock. The lesions observed were of two different types: in the pleura, hyperergic lesions with inflammatory phenomena and development of granulomas; in the heart muscle, a myocarditis reproducing the exact picture found in human American trypanosomiasis.

To exclude the possibility of a toxic action eventually induced by the antigen, two more monkeys were injected. The first received 5 mg. of a desiccated mass of parasites directly into the heart muscle, and, on the same day, 15 mg. of the same material intravenously. The second rhesus received 312 mg. of humid parasites and 42 mg. of dried parasite mass in five injections given at 5 day intervals. No lesions were found in the pleura or in the heart muscle.

Muniz and Azevedo conclude that the killed parasitic bodies behave in the organism like a heterogenous protein with a high sensitizing power and that the lesions described occur as a consequence of the particular conditions of the sensitization. The heart muscle is more sensitive than all other organs and may be considered as a true "shock organ." The complete similarity of the histopathologic picture presented by the rhesus heart muscle in these experiments and the myocarditis observed in human cases of American trypanosomiasis modify the present concept of the pathogenic role of T. cruzi. The theory of an allergic condition in the pathogenesis of such a myocarditis, as suggested in 1929 by Magarinos Torres, finds here its experimental confirmation.

Correspondence

STATE PLANNING CONFERENCE FOR CHILDREN AND YOUTH

To the Editor:--I recently attended the State Planning Conference for Children and Youth in Washington, D. C. (March 30-April 1, 1948). The conference was called by the National Commission on Children and Youth in order to work out a program of action on the state and community level prior to the White House Conference on Children and Youth for 1950. The conference strongly advised the formation of State Committees for Children and Youth in those states not already having such committees, and that these state committees spearheed the formation of community committees. The theme of the 1950 White House Conference is to be "The Child in His Community." In previous White House conferences, decisions were made on the national level at the time of the conference. It is hoped that a well developed program will be under way in every state and community before the 1950 White House conference convenes.

While there were a number of representatives from state health departments, as far as I have been able to determine from the list of delegates, I was the only official delegate from any state medical society. The conference specifically recommended that each state chairman of the American Academy of Pediatrics be named on the State Committee for Children and Youth. It was recognized that these men would be in a better position to interpret the results of the recent Academy of Pediatrics Study of Child Health Services on a state level. It was also felt that state and county medical societies should be represented on these committees. Interestingly enough, these recommendations came from persons outside the medical profession.

The whole tone of the conference indicated that the layman and members of allied professions were most interested in seeking the leadership and advice of the members of the medical profession. Another healthful sign was the emphasis placed on local planning. While the conference was held under the auspices of the Children's Bureau, the government agencies remained much in the background.

In the months ahead members of the medical profession will be asked to serve on State and Local Committees for Children and Youth. It is an opportunity and a challenge which we cannot afford to overlook.

Carl G. Ashley, M.D., Portland, Ore.

NEUROPSYCHIATRY

To the Editor: The term neuropsychiatry has recently come into vogue, especially among the military. This term is unfortunate, since this word – though listed in Webster – is a bastard and a misnomer. Similar words in common usage, such as neurosurgery, neurophysiology and neuroanatomy, naturally lead to the assumption that "neuro" in neuropsychiatry stands for "neurologic." But this is not the case. There is no such thing as neurologic psychiatry. Neither can "neuro" stand for nerve or neuron – as in neuromuscular. 'Neuro" is apparently supposed to be an abbreviation of "neurology." If so the term neuropsychiatry is awkward because the endings of the two words are not the same. One rightly abbreviates otology, rhinology and laryngology to otorhinolaryngology, since in this case all endings are the same. If neuropsychiatry is intended to mean an abbreviation of neurology and psychiatry, both of these two words should be used. Each of these disciplines is so large that each deserves to be called by its own full name. One does not say "gynecoobstetrics," but gynecology and obstetrics. One does not say "ophthalmosurgery" when one means ophthalmology and surgery. A laudable effort to do away with the term "neuropsychiatry" was made at the meeting of the Section on Neuropsychiatry of the California State Medical Association in April 1948. A resolution was adopted to suggest to the council that the name of the section be changed from neuropsychiatry to neurology and psychiatry. A further innovation worthy of imitation has been made in this section under the able chairmanship of Dr. Robert B. Aird of San Francisco. In 1948 the section of neuropsychiatry had two separate sessions, held on separate days: one a psychiatric session, the other a neurology session. This is a better arrangement by far than a program of intermingled papers on neurologic and psychiatric subjects. The interests of neurologists and psychiatrists are drifting too far apart to make a constant mixed program appealing to both. The ideal solution for medical societies, of course, would be the establishment of a separate section on neurology and neurosurgery on one side, and a section on psychiatry on the other. But, for the time being, this idea must remain only the pious wish of some neurologists and neurosurgeons.

ROBERT WARTENBURG, M.D., San Francisco.

AUGMENTATION OF MERCURIAL DIRURESIS BY RECUMBENCY

To the Editor:--In connection with the résumé on diuretics by Dr. De Graff (THE JOURNAL, April 17, p. 1025) attention may be called to a simple and useful expedient to enhance the diuretic effect of mercurial compounds, namely, that the patient rest in the recumbent position for eight to twelve hours following administration of the drug.

Newer physiologic investigations are providing clearer insight into the mechanism of congestive heart failure and a better rationale for therapeutic procedures whose value has long been recognized. The beneficent effect of bed rest in cardiac decompensation is due not only to decreasing the work of the heart but in important measure as well to an improvement in the renal circulation. The studies of Warren and Stead (*Arch. Int. Med.* 73: 138, 1944) and others have shown a striking decrease in renal blood flow and glomerular filtration in cardiac failure, with the consequent retention of sodium, a prime factor in the development of edema. The erect position and exercise similarly cause renal vasoconstriction decreasing renal blood flow and glomerular filtration with a fall in diuresis; and particularly is this so in subjects with cardiac failure (Brun, C.; Knudsen, E. O. E., and Raaschou, F.: *Acta med. Scandinav.* 122:315, 1945; Merrill, A., and Cargill, W.H.: *J. Clin. Investigation* 27:272, 1948). The diuretic action of mercury, depending as it does on paralysis of tubular reabsorption of sodium, requires that adequate amounts of sodium and fluid be present in the glomerular filtrate, i.e., an ample renal blood flow and glomerular filtrate. In persons with severe congestive failure who are unresponsive to mercurial diuretics, an increase in renal blood flow brought about by intravenous administration of aminophylline restores the full diuretic effect of mercurials (Weston, R.E., and Escher, D.J.W. in Proceedings Annual Meeting Americal Society for Clinical Investigation, May 3, 1948). The diuretic effect of digitalis in congestive failure likewise is attributable to an increase in cardiac output and renal blood flow. Measures which increase renal blood flow such as bed rest, the xanthines and digitalis genuinely potentiate the diuretic effect of mercurial compounds.

It is customary to administer mercurial diuretics in the morning so that the patient's sleep is not disturbed due to the necessity for frequent voiding. Ambulant patients treated in the office or clinic should be advised to remain in bed on the day they receive a mercurial injection, so that their diuresis is augmented by the increase in renal blood flow and glomerular filtration resulting from recumbency. In subjects on daily or near daily maintenance dosage of mercurial tablets it is preferable that these be taken at bedtime, since in such circumstances of continued mercurial administration diuresis is seldom sufficiently severe to cause much interference with sleep. An additional advantage is served if mercurial tablets are taken at bedtime, for the nocturnal diuresis helps to minimize the increase in blood volume which occurs when edematous subjects assume the recumbent position and reabsorb into the circulation fluid filtered during the day into the extravascular tissues of the lower extremities. It is this increase in blood volume which is responsible for nocturnal dyspnea. Administration of mercurial tablets on retiring, alone or together with a 0.5 Gm. aminophylline suppository, is effective in decreasing nocturnal dyspnea and in aiding the subject with cardiac decompensation to maintain a normal renal excretion of salt and water.

RICHARD GUBNER, M.D., Brooklyn.

Bureau of Investigation

COURT CALLS KAADTS DISGRACE TO PROFESSION

Sentenced For Violation Of Pure Foods Laws

On April 14, 1948, the Federal District Court jury at Fort Wayne, Ind., found the brothers Charles F. Kaadt and Peter S. Kaadt, doing business as the Kaadt Diabetic Clinic at South Whitley, Ind., and Robert Benson, their superintendent, guilty of violation of the Federal Food, Drug and Cosmetic Act. The defendants had, the jury found, caused to be introduced into interstate commerce a drug misbranded by collateral literature. The drug was vinegar and saltpeter (potassium nitrate). The collateral literature created an impression in the mind of the reader that such drug was a specific for diabetes.

On May 4, 1948, twenty days later, the court reconvened to hear arguments on the motion for a new trial by defense attorneys and to pass sentence. For the brothers Kaadt the court assessed the maximum penalty provided in the statute, namely, one year in jail and a fine of $1,000 for each of the seven counts. It was provided that as to counts 1, 2 and 3 of the indictment each defendant would serve the years consecutively, but counts 5, 6 and 7 were to be served concurrently with count 4, on which sentence was suspended. In addition, the brothers were to be placed on probation for an unstated period, to begin at the end of the serving of the sentence. Assessed equally against each of these defendants were costs which totaled approximately $4,300. Defendant Robert Benson received a suspended sentence of one year. He was fined $50 on each of the seven counts, or a total of $350. He was placed on probation for a period of two years. Peter Kaadt was given ninety days within which to begin serving his sentence. He was brought into the courtroom on a stretcher, because of a heart attack. Charles Kaadt was given ten days within which to begin serving his sentence. Both were denied bond pending appeal.

In sentencing the defendants District Judge Patrick T. Stone said:

> It has taken years of effort on the part of the United States Attorney and the Food and Drug Department to bring you to the bar of justice to answer for your crimes. The proof submitted to the jury as to your guilt was overwhelming. For many years you have been engaged, on a wide scale, in a sordid, an evil and a vicious enterprise, without the slightest regard or consideration for the patients that consulted you seeking relief from diabetes. They were innocent and hopeful, but so gullible. They poured out to you their savings, hoping and believing that you would cure them of their ailment. At all times that you operated your institute, you knew there was no cure for diabetes, that the only recognized treatment for this disease was insulin and a sugar-free diet. Yet, notwithstanding that knowledge, you, in your avarice and greed for wealth, wrongfully advised these trustful patients, and as a result they suffered permanent damage and injury, and perhaps some went to an early grave. You have brought disrepute to your profession, disgrace and dishonor to you and your family. Defendant Charles Kaadt has been operating this health-destroying institute for about ten years. The wheels of justice grind slowly but surely. If you defendants were younger, I would not hesitate to impose the maximum sentences of imprisonment. I shall give to you what you withheld from your patients - some consideration for your condition of health. You were cold, cruel, vicious and heartless in your quest for wealth.

The trial, which lasted for seven days, contained much of the dramatic in the parade of injured witnesses or their survivors and in the testimony of expert medical witnesses. The highlight, however, was the cross examination of Dr. Peter S. Kaadt, who was forced to admit that an insulin deficiency exists in diabetes; that vinegar and potassium nitrate would not produce insulin in the body or bring a patient out of a coma; that he did not know how to make a blood sugar or a dextrose tolerance test, nor could he undertake the determination of a blood level of potassium; nor did he know what the renal threshold is, or what constitutes renal glycosuria. Although on direct examination he had described himself as an expert in diabetes, he had to admit that he took the patients' word for their ailments, that he made no physical examinations and that employees of the Kaadt Diabetic Clinic had prepared the patients' histories. Further, no prescriptions or records of medication were kept.

Dr. Kaadt had testified on direct examination that vinegar had therapeutic value in diabetes, but he admitted to previous testimony before a board of medical examiners that it was a vehicle only. His direct testimony on several other important items was similarly impeached.

The ferric chloride test, "given" the patient with the $30 "treatment," which included some digestive tablets and emodin-bearing pills, was shown to be a test for acidosis and therefore useless as a test for sugar in the urine. That patients should be so misled was forcefully brought to the jury's attention.

Charles F. Kaadt, the prime mover of the scheme, did not take the stand in his defense, nor had he appealed the action of the Indiana Board in revoking his license to practice medicine in Indiana in 1947 for gross immorality in his practice.

The court had permitted the reading into the record part of the proceedings before the Board of Medical Registration and Examination wherein Peter Kaadt's license to practice medicine was revoked for gross immorality in the practice of medicine. Further deliberation by the Court, however, resulted in the request that the jury disregard the recitation. Reference, of course, was to the successful action of the Indiana State Board of Medical Registration and Examination which only recently had been upheld by the State Supreme Court.

On his direct examination, Dr. Peter Kaadt in attempting to show that he was only helping his brother thereby permitted the government to introduce a series of letters on the letterhead of the clinic showing his name. These letters revealed, incidentally, that the quantity of vinegar being purchased monthly amounted to eighteen 50 gallon barrels. The prosecuting attorney's summation recalled testimony that the patients were usually kept in the Clinic for three days at $10 a day and that the medicine was sold for $30 a gallon. The added ingredients, principally potassium nitrate, brought the volume to approximately 1,200 gallons of medicine a month. Thus they were able to demonstrate to the jury an approximate monthly gross income of $60,000.

Expert witnesses for the government were Dr. Elliott P. Joslin, emeritus clinical professor of medicine at Harvard University, Dr. Henry T. Ricketts of the University of Chicago, Dr. John Warvel of the University of Indiana, Dr. Joseph Barach of the University of Pittsburgh and past president of the American Diabetes Association, Dr. Rollo N. Harger, professor and head of the Department of Pharmacology and Toxicology of the University of Indiana and state toxicologist, and Dr. William M. LeFevre, internist of Muskegon, Mich.

The story of insulin therapy with diet and of what such has done for the life expectancy of the diabetic person, particularly in the younger age groups, was brought forcibly and dramatically to the attention of the jury. Dr. Joslin recalled having starved children to enable them to live a bit longer in the hope that something would be discovered that would be a control or a cure for the disease.

In striking contrast was the medical testimony for the defense, led by H. Ward Quartel, an osteopath from Dayton, Ohio. He testified that he was getting good results on a dozen patients in the use of the Kaadt vinegar and saltpeter. Cross examination brought out, however, that his testimony before the Indiana State Board of Medical Registration and Examination on behalf of the Drs. Kaadt was given at about the same time that he obtained the formula from them. That was six months earlier, and he had been using the Kaadt method for the same length of time.

Quartel was followed by two doctors of medicine. Elmer N. Shockley of Bassetts, Va., house physician in an industrial plant, stated he had 1 diabetic patient on whom the Kaadt treatment had been used. It was brought out on cross examination that he had gone to South Whitley to the Kaadt Diabetic Clinic for treatment of his own diabetes, which was, he stated, improved by the vinegar and saltpeter. He also admitted, on cross examination, conversations with a former employee of the Kaadt Diabetic Clinic with a view to opening a similar institution in the East. Such, however, was not done.

Dr. George L. Thompson of Owensboro, Ky., testified that he brought his wife, a sufferer from diabetes, to the clinic. She did not appear as a witness. Cross examination, however, revealed that Dr. Thompson does treat his own diabetic patients with insulin.

Both sides were limited to the introduction of testimony on six items of fact. Six witnesses appeared on behalf of the government, of whom 3 were younger persons with diabetes, 2 were survivors of deceased diabetic patients and the sixth was an amputee. Testifying for the defense were 6 persons who claimed that they were diabetic and had received benefit from the use of the Kaadt treatment. It so happened that 2 of these had recently been examined by other physicians who came to Fort Wayne to testify in rebuttal for the government. Each of the "satisfied" customers of the Drs. Kaadt had 4 plus sugar.

Perhaps the most damaging witness to the brothers Kaadt was a boy aged 15 who had gone to the Clinic because his mother had heard of the "cure. She had other children at home and could not remain with him at the clinic. This lad took notes of a lecture delivered by Dr. Charles Kaadt (as was clinic custom) and testified from these notes that Dr. Kaadt had told his listeners, among other things, that "whisky is good for diabetes"; "boiled sugar is safe"; "the less insulin the better," and "if you have a diet, throw it away."

The Kaadt Diabetic Clinic has been in operation for a good many years. Dr. Charles F. Kaadt started out in Fort Wayne, Ind., during the twenties. He had been a surgeon for the Wabash Railroad. The Bureau of Investigation reported on the matter in THE JOURNAL of Aug. 15, 1931. The report at that time told of the attempt on the part of the Bureau to learn the details of the treatment, which was then being sold by mail, a quart bottle costing $5. The medicine at that time was described as a material which indicated the presence of potassium nitrate in fairly large amounts, dissolved in a brown, murky liquid having the odor of vinegar. Over the years, the only change seems to have been the increase to gallon lots with digestive and laxative pills as the components of the home treatment also being carried away by the victims. On cross examination Peter Kaadt complained that medical science quit when it discovered insulin.

In the past, adversity, in the form of action denying the use of the mails, which earlier had disrupted active interstate distribution of this nostrum, only served to solidify the business of Dr. Charles Kaadt. When it became so large that he could no longer handle it alone, his brother joined with him.

So for the institution has had the benefit of the investigative action of the Better Business Bureau of Indianapolis, the *Indianapolis Star*, the Indiana State Board of Medical Registration and Examination, the Post Office Department and now the Food and Drug Administration and the Department of Justice. Withal it has taken considerable effort and enormous expense to place the present obstacles in the path of the prosecution of this business. During the trial the institution was being operated under the guidance of Dr. Archie Jones, of Fort Wayne and other Indiana points. Newspapers, during the trial carried a report that he was to be cited by the Indiana State Board of Medical Registration and Examination to show cause why his license to practice medicine should not be revoked. More recent reports do indicate, however, that the Kaadt Diabetic Clinic has finally closed its doors.

The government was ably represented by United States Attorney Alex M. Campbell and his assistants, James S. Keating and Gilmore S. Haynie. The defendants had Frank E. Corbett and Lloyd Hartzler of Fort Wayne as counsel. Congratulations are certainly in order to the office of the United States Attorney for skilful handling of the case in such a manner that a favorable verdict was reached by the jury within a relatively short period of time. The investigation of the Food and Drug Administration as the preliminary to the court action bore such fruit as to indicate its efficiency. It is the hope of the Bureau that these events may serve as discouragement to others who may seek to capitalize on uninformed fear of the insulin needle.

Medical Motion Pictures

FILM REVIEW

Daily Battle. 16 and 35 mm., black and white, sound, 800 feet (one reel), showing time twenty minutes. Produced in 1947 by RKO Pathe, Inc., through the cooperation of McCook Memorial Hospital, Hartford, Conn. Procurable on loan or purchase from the National Foundation for Infantile Paralysis, 120 Broadway, New York 5.

This film is a vivid portrayal of the services provided by the March of Dimes, through national and local chapters of the National Foundation for Infantile Paralysis. It was designed to show how the funds are used in the fight against poliomyelitis and the constant vigil necessary to meet the handling of these cases. The film can be recommended for showing to hospital personnel, physical therapists and those persons interested in rehabilitation problems.

The Feeling of Rejection; Its Development and Growth. 16 mm., black and white, sound, 800 feet (1 reel), showing time twenty minutes. Prepared in 1947 with the technical advice of the Medical staff of the Allen Memorial Institute of Psychiatry, McGill University and the Royal Victoria Hospital, Montreal, for the Mental Health Division of the Department of National Health and Welfare, Ottawa. Produced and procurable on rental or purchase from the National Film Board of Canada, 400 West Madison Street, Chicago 6, and 620 Fifth Avenue, New York 20.

This film portrays the case of Margaret, who at the age of 22 complains to a psychiatrist that she is shy, moody and indecisive to the point of self frustration. Placed on a gynecologic table in lieu of an analytic couch, Margaret recounts the story of her life and thus furnishes the script for a series of flashbacks in familiar Hollywood styles. Margaret's mother is accused of inculcating fears of normal initiative and exploratory play in Margaret's childhood, after which Margaret is shown experiencing rivalry with a younger sibling, feeling rejected by her parents frustrated in substitutive attachments to an idealized school friend and so on. To an experienced analyst these retrospective fantasies can mean little more than literalized "screen memories," yet they are presented in the film as the cause rather than the accompaniment of defensive personality traits such as exaggerated meticulousness, masochistic discipline and resentful isolation.

From a technical point of view the film has a number of other defects: the musical interpolations are distracting and amateurish, and the commentary is occasionally so tedious and pontifical that the net effects are painful rather than poignant.

Psychologically, the film oversimplifies the nature of "feeling of rejection" and fails to clarify the complex sexual inhibitions, repressed hostilities and other unconscious conflicts that underly Margaret's obsessive-compulsive neurosis. Certainly, the implication that such deep seated character deviations can be corrected in a few therapeutic interviews is seriously misleading.

On the favorable side, this is a commendable first attempt to present some of the modern concepts of dynamic psychiatry to lay or ancillary professional groups. Despite the explanatory pamphlet that accompanies the film, however, a competent psychologist or psychiatrist should be present to clarify and amplify its message and so prevent misunderstanding of its content.

The following 16 mm., black and white sound motion pictures are part of a series of five films produced in 1947 by the McGraw-Hill Book Company for correlation with the Textbook of Healthful Living, prepared by Harold S. Diehl, M.D., dean of the medical sciences, University of Minnesota, Minneapolis. Procurable on purchase from McGraw-Hill Book Company, Inc., 330 West Forty-second Street, New York 18, or procurable on rental from Y.M.C.A. Motion Picture Bureau, 19 South La Salle Street, Chicago 3.

Emotional Health. 725 feet (one reel), showing time twenty minutes.

The continuity of this motion picture is characterized by excellent writing, competent acting and good medical sense. A youth consults a general practitioner for "heart trouble" and receives the usual diagnostic examination. He is told that he is in normal physical condition but that his cardiac symptoms may be due to *functional disturbances arising from emotional* stresses. The physician's explanations, clear and concise in themselves, are illustrated by sequences of action and cartoon animation which, though somewhat oversimplified, would be illuminating to a lay audience. The youth is then advised to consult a psychiatrist, and his objections to the referral are dispelled by further reassurances that could serve as a model for many a practitioner. Excerpts from several of the patient's subsequent interviews with the psychiatrist--for once portrayed as a perceptive and rational human being--are then recorded, and the patient's anxieties are traced to conflictful familial, sexual and social attitudes. Throughout this section of the film typical episodes that may have led to the formation of disturbing unconscious conflicts are recalled in vivid flashbacks relevant to the patient's childhood experiences. Although the interviews are of necessity somewhat telescoped, the course of the therapy is presented in logical and convincing sequence and with a validity that stems from authoritative supervision.

This film can be highly recommended not only for the teaching of medical undergraduates but for presentation to lay groups interested in some of the principles of psychosomatic medicine and *brief psychotherapy*.

Body Care and Grooming. 600 feet (one reel), showing time sixteen minutes.

The importance of personal cleanliness, good grooming and proper attention to clothing is well depicted in this film in a way that would be acceptable to the average college student. The structure and activity of the skin are shown in diagrammatic animation. The motivation for cleanliness and care of the body is extremely effective, and, though it is particularly aimed at students of college age, there is no apparent reason why it would not be equally useful for high school groups. It could be used in mixed as well as in segragrated groups.

A silent follow-up film strip, consisting of scenes selected from the corresponding motion picture over which questions are superimposed, accompanies each motion picture. Photography is excellent and the animation is well done.

The following was omitted from the motion picture review entitled "HUMAN REPRODUCTION" which appeared in THE JOURNAL, A.M.A., May, 1948, p. 323:

The following 16 mm., black and white sound motion picture is a part of a series of five films produced in 1947 by the McGraw-Hill Book Company for correlation with the Textbook of Healthful Living, prepared by Harold S. Diehl, M.D., Dean of the Medical Sciences, University of Minnesota, Minneapolis. Procurable on purchase from McGraw-Hill Book Company, Inc., 330 West Forty-second Street, New York 18, or procurable on rental from Y.M.C.A. Motion Picture Bureau, 19 South La Salle Street, Chicago 3.

An Introduction To Extracellular Fluid. 16 mm., black and white, sound, 800 feet (one reel), showing time twenty-five minutes. Prepared in 1945 by James L. Gamble, M.D., professor of pediatrics, Harvard University Medical School, Boston. Produced by and procurable on loan from Mead Johnson & Company, Evansville 21, Ind.

The author presents a lecture based on a highly technical subject to which he has devoted much time and effort over a period of years. The chemistry and physiology of extracellular fluid have been his chief medical interest, together with the application of basic principles to the clinical aspects of fluid balance in health and disease. This picture will be of interest to those who studied under the author and to those interested in fluid balance, However, to those who are looking for a teaching film containing the modern devices, this picture will be a disappointment because it shows the self-effacing scientist, rather ill at ease before the sound camera, presenting his subject in lecture form with the aid of two charts. It might have been preferable to portray the author in his laboratory, at his desk or in the ward in lieu of standing before an unseen group of students.

Coming Medical Meetings

American Medical Association, Chicago, June 21-25. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

Aero Medical Association, Royal York Hotel, Toronto, Canada, June 16-18. Dr. Thomas H. Sutherland, 214 S. State St., Marion, Ohio, Secretary.

American Academy for Cerebral Palsy, Baltimore, May 30-31. Dr. Meyer A. Perlstein, 4743 N. Drake Ave., Chicago 25, Secretary.

American Academy of Tuberculosis Physicians, Chicago, June 19. Dr. Oscar S. Levin, P. O. Box 7011, Denver 5,

American Association for the Surgery of Trauma, Drake Hotel, Chicago, June 17-20. Dr. Charles G. Johnston, 1512 St. Antoine St., Detroit 26, Secretary.

American Association for Thoracic Surgery, Quebec, Canada, May 31-June 2. Dr. Brian Blades, 1335 H St. N.W., Washington 5, D.C., Secretary.

American Association of the History of Medicine, Penn Sheraton Hotel, Philadelphia, May 26-27. Dr. Howard Dittrick, 2020 E. 93rd St., Cleveland 6, Secretary.

American Blood Irradiation Society, Stevens Hotel, Chicago, June 19-20. Dr. G. J. P. Barger, 1125 Buchanan St. N.W., Washington, D.C., Secretary.

American College of Chest Physicians, Congress Hotel, Chicago, June 17-20. Dr. Benjamin L. Brock, 500 N. Dearborn St., Chicago 10, Secretary.

American College of Radiology, Sheraton Hotel, Chicago, June 20. Mr. Mac F. Cahal, 20 N. Wacker Drive, Chicago 6, Executive Secretary.

American Diabetes Association, Chicago, June 17-20. Dr. George E. Anderson, 429 Clinton Avenue, Brooklyn 5, Secretary.

American Electroencephalographic Society, Claridge Hotel, Atlantic City, June 12-13. Dr. Robert S. Schwab, Massachusetts General Hospital, Boston 15, Secretary.

American Heart Association, Stevens Hotel, Chicago, June 18-19. Dr. Harry E. Ungerleider, 50 W. 50th St., New York, Secretary.

American Medical Women's Association, Blackstone Hotel, Chicago, June 19-20. Dr. Helena T. Ratterman, 125 Wm. Taft Road, Cincinnati 19, Corresponding Secretary.

American Neurological Association, Claridge Hotel, Atlantic City, June 14-15. Dr. H. Houston Merritt, 100 E. Gun Hill Road, New York 67, Secretary.

American Orthopedic Association, Quebec, Canada, June 3-6. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, Academy of Medicine Bldg., New York, June 10. Dr. Norman N. Smith, 291 Whitney Ave., New Haven 11, Conn., Secretary.

International Poliomyelitis Conference, Waldorf-Astoria Hotel, New York, July 12-17. Mr. Stanley E. Henwood, Room 571, Waldorf-Astoria Hotel, New York 22, Executive Secretary.

Maine Medical Association, Poland Spring House, Poland Spring, June 20. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

Massachusetts Medical Society, Hotel Statler, Boston, May 25-27. Dr. H. Quimby Gallupe, 8 Fenway, Boston 15, Secretary.

Medical Library Association, Warwick Hotel, Philadelphia, May 28-30. Miss M. Edna Poole, 288 Bloor St. W., Toronto 5, Canada, Secretary.

Minnesota State Medical Association, Minneapolis, June 7-9. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Montana, Medical Association of, Billings, June 17-19. Dr. H. T. Caraway, 115 N. 28th St., Billings, Secretary.

National Gastroenterological Association, Hotel Pennsylvania, New York, June 7-10. Dr. G. Randolph Manning, 1819 Braodway, New York 23, Secretary.

National Tuberculosis Association, Hotel Pennsylvania, New York, June 14-18. Dr. H. Stuart Willis, 1790 Broadway, New York 19, Secretary.

New Hampshire Medical Society, Newcastle, June 2-3. Dr. Carleton R. Metcalf, 5 S. State St., Concord, Secretary.

New Mexico Medical Society, Las Vegas, June 3-5. Dr. H.L. January, 221 W. Central Ave., Albuquerque, Secretary.

North Dakota State Medical Association, Jamestown, May 23-25. Dr. O. A. Sedlak, 702 First Avenue S., Fargo, Secretary.

Society for Investigative Dermatology, Hotel Sherman, Chicago, June 20. Dr. Samuel M. Peck, 140 E. 54th St., New York 22, Secretary.

Society for Vascular Surgery, Hotel Stevens, Chicago, June 20. Dr. J. Ross Veal, 1028 Connecticut Ave., Washington 6, D. C.

South Dakota State Medical Association, Sioux Falls, May 30-June 1. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.

Southern Society of Clinical Surgeons, Chicago, May 26-28. Dr. William P. Nicolson Jr., 478 Peachtree St. N. E., Atlanta, Ga., Secretary.

American Pediatric Society, Quebec, Canada, May 24-26. Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secretary.

American Physiotherapy Association, La Salle Hotel, Chicago, May 23-28. Miss Mildred Elson, 1790 Broadway, New York 19, Executive Secretary.

American Proctologic Society, Chicago, June 18-21. Dr. Vernon G. Jeurink, 1612 Tremont Place, Denver 2, Secretary.

American Radium Society, Hotel Stevens, Chicago, June 20. Dr. Hugh F. Hare, 605 Commonwealth Ave., Boston 15, Secretary.

American Rheumatism Association, Hotel Stevens, Chicago, June 19-20. Dr. Charles Ragan, 620 W. 168th St., New York 32, Secretary.

American Surgical Association, Chateau Frontenac, Quebec, Canada, May 27-29. Dr. Warfield M. Firor, Johns Hopkins Hospital, Baltimore 5, Secretary.

American Therapeutic Society, Chicago, June 29. Dr. Oscar B. Hunter, 1835 I St. N.W., Washington 6, D. C., Secretary.

American Venereal Disease Association, Chicago, June 20. Dr. William L. Fleming, 750 Harrison Ave., Boston, Secretary.

Association for the Study of Internal Secretions, Palmer House, Chicago, June 18-19. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

Idaho State Medical Association, Sun Valley, July 5-8. Dr. Wallace Bond, 144 E. Fourth Ave., Twin Falls, Secretary.

Interamerican Cardiological Congress, Michael Reese Hospital, Chicago, June 13-17. Dr. Richard Langendorf, Michael Reese Hospital, 29th and Ellis, Chicago 16, Secretary.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were published in THE JOURNAL, April 17, page 1064.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Examination. Montgomery, June 22-24, 1948. Sec., Dr. D.G. Gill, 519 Dexter Ave., Montgomery 4.

ARKANSAS:* Examination. Little Rock, June 3-4. Sec., Medical Board of the Arkansas Medical Society, Dr. L.J. Kosminsky, Texarkana. Eclectic: Little Rock, June 3. Sec., Dr. C.H. Young, 1415 Main St., Little Rock.

CALIFORNIA: Oral. San Francisco, June 5-6; Los Angeles, Aug. 7-8. Written Examination. San Francisco, June 7-10. Los Angeles, Aug. 9-12. Oral and Clinical Examination for Foreign Graduates. San Francisco, June 6. Sec., Dr. Frederick N. Scatena, 1020 N. Street, Sacramento 14.

COLORADO:* Examination. Denver, June 21-23. Final date for filing application is June 5. Sec., Dr. J.B. Davis, 831 Republic Bldg., Denver.

CONNECTICUT:* Examination. Hartford, July 6-7. Sec., Dr. Creighton Barker, 258 Church St., New Haven.

DELAWARE: Examination. Dover, July 13. Endorsement. Dover, July 22. Sec., Dr. J.S. McDaniel, 229 S. State St., Dover.

FLORIDA:* Examination. Jacksonville, June 29-30. Sec., Dr. Harold D. Van Schaick, 6675 Windsor Lane, La Gorce Island, Miami Beach 41.

GEORGIA: Examination. Atlanta, June 8-9. Endorsement. June 10. Sec., Mr. R.C. Coleman, 111 State Capitol, Atlanta.

HAWAII: Examination. Honolulu. July 12-15. Sec., Dr. S.E. Doolittle, 881 S. Hotel St., Honolulu.

IDAHO: Boise, July 13-15. Sec., Bureau of Occupational Licenses, Miss Estella S. Mulliner, 355 State House, Boise.

ILLINOIS: Chicago, June 29-July 1. Supt., Dept. of Registration and Education, Mr. Fred W. Ruegg, Springfield.

INDIANA: Examination. Indianapolis, June 15-17, 1948. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

KANSAS: Kansas City, June 9-10. Sec., Board of Medical Registration & Examination, Dr. J.F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: Examination. Louisville, June 16-18. Sec., Dr. P.E. Blackerby, 620 S. 3rd St., Louisville.

LOUISIANA: New Orleans, June 3-5. Sec.-Treas., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MAINE: Augusta, July 6-7, Sec., Dr. A.P. Leighton, 192 State Street, Portland.

MARYLAND: Medical Examination. Baltimore, June 15-18. Sec.-Treas., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. Homeopathic Examination. Baltimore, June 15-16. Sec., Dr. J.A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Examination. Boston, July 13-16. Sec., Board of Registration in Medicine. Dr. H.Q. Gallupe, 413-E. State House, Boston.

MICHIGAN:* Examination. Parlor A, Olds Hotel, Lansing, June 9-11. Sec., Board of Registration in Medicine, Dr. J.E. McIntyre, 100 W. Allegan St., Lansing.

MISSISSIPPI: Jackson, June 28-29, 1948. Asst. Sec., State Board of Health, Dr. R.N. Whitfield, Jackson,

MONTANA: Helena, Oct. 4-6. Sec., Dr. O.G. Klein, First Nat'l Bank Bldg., Helena.

NEBRASKA:* Examination. Omaha, June 7-9. Dir., Mr. Oscar F. Humble; Room 1009 State Capitol Bldg., Lincoln 9.

NEW HAMPSHIRE: Concord, Sept. 9. Sec., Board of Registration in Medicine, Dr. J.S. Wheeler, Room 107, State House, Concord.

NEW JERSEY: Examination. Trenton, June 15-17. Sec., Dr. E.S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO:* Santa Fe, Oct. 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

NEW YORK: Examination. Various Centers, June 28-July 1. Sec., Dr. J.L. Lochner Jr., State Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G.M. Williamson, 4½ S. 3rd St., Grand Forks.

OHIO: Examination. Columbus, June 21-24. Sec., Dr. H.M. Platter, 21 W. Broad St., Columbus 15.

OKLAHOMA:* Oklahoma City, June 2-3. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON:* Examination. July and Jan. Endorsement. July and Aug. Sec., Miss L.M. Conlee, 608 Failing Bldg., Portland.

PENNSYLVANIA: Examination. Philadelphia & Pittsburgh, July. Act. Sec., Bureau of Professional Licensing, Mrs. M.G. Steiner, 351 Education Bldg., Harrisburg.

RHODE ISLAND:* Examination. Providence, July 1-2. Chief, Div. of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Written Examination. Columbia, June 21-23. Endorsement. July 5. Sec., Dr. N.B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA:* Pierre, July 20-21. Sec., Dr. Gilbert Cottam, Capitol Bldg., Pierre.

TENNESSEE:* Examination. Memphis & Nashville, June 9-10. Sec., Dr. H.W. Qualls, 1635 Exchange Bldg., Memphis.

TEXAS: Waco, June 16-18. Sec., Dr. H.F. Connally, 1305 Amicable Bldg., Waco.

UTAH: Examination. Salt Lake City, June, 1948. Asst. Dir., Department of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VERMONT: Examination. Burlington, June 25-26. Sec., Dr. F.J. Lawliss, Richford.

VIRGINIA: Examination. Richmond, June 18-19. Endorsement. Richmond. June 17. Sec., Dr. K.D. Graves, 306 Medical Arts Bldg., Roanoke.

WEST VIRGINIA: Charleston, July 5-7. Comm., Public Health Council, Dr. N.H. Dyer, State Capitol Bldg., Charleston.

WISCONSIN:* Milwaukee, June 29-July 1. Sec., Dr. C.A. Dawson, Tremont Bldg., River Falls.

WYOMING: Examination. Cheyenne, June 7. Sec., Dr. G.M. Anderson, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: Examination. Tucson, June 15. Sec., Mr. Francis A. Roy, Univ. of Arizona, Tucson.

COLORADO: Examination. Denver, June 2-3. Sec., Dr. E. B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: Examination. June 12., Exec. Asst., State Board of Healing Arts, Mr. W.G. Reynolds, 110 Whitney Ave., New Haven 10.

IOWA: Des Moines, July 13, Oct. 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MINNESOTA: Examination. Minneapolis, June 1-2. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

OREGON: Examination. Portland, June 19. Final date for filing application is June 2. Sec., Basic Science Examining Committee, Dr. C.D. Byrne, Univ. of Oregon, Eugene.

SOUTH DAKOTA: Examination. Vermillion. June 4-5. Sec., Dr. G.M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: Examination. Memphis, July 5-6. Sec., Dr. O.W. Hyman, 874 Union Ave., Memphis.

WISCONSIN: Examination. Madison, Sept. 25. Final date for filing application is Sept. 18. Sec., Prof. W.H. Barber, Scott & Watson Sts., Ripon.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Narcotics: Physician's Right to Possess Narcotics Unlawfully Obtained.—The defendant was convicted of unlawfully possessing a narcotic drug and from such conviction appealed to the court of criminal appeals of Texas.

A patient of the defendant physician testified that his wife was given a prescription calling for fifteen tablets of 1/16 grain (4 mg.) "Dilaudid Hcl" (dihydromorphinone hydrochloride) which was taken to a pharmacist and properly filled. The patient then returned to the physician's office and gave him the box which the pharmacist had given her. He took it into his private office. A little while later he delivered to the patient a box of pills which were subsequently analyzed as "novocaine" hydrochloride and not "dilaudid" hydrochloride. "Novocaine" hydrochloride is not a derivative of opium, but "dilaudid" hydrochloride is. It was the contention of the state that the defendant physician came into possession of the narcotic by taking the same from the filled prescription and substituting another drug therefor--in other words, that the defendant acquired the narcotic by theft, subterfuge or fraud and that therefore his possession of it was unlawful. The defendant contended that he had the right to possess narcotics.

Section 2 of the uniform narcotic act provides that "It shall be unlawful for any person to... possess...any narcotic drug." Section 2 A provides that: "It shall not be unlawful to...possess... any narcotic drug where same is authorized under the terms of this Act." These two sections, 2 and 2 A, said the court, are a part of the same act and are of equal dignity. They must therefore be construed together. When so construed, they must mean that if the act authorizes possession of a narcotic, such possession is lawful; otherwise, it is not. It becomes material, then, the court continued, to determine wherein the act authorizes possession of a narcotic and if the defendant has discharged the burden resting upon him to bring himself within those provisions. A physician--that is, one authorized by law to practice medicine--in this state may in good faith, in the course of his professional practice only, prescribe, administer and dispense narcotic drugs. The term dispense as there used, in addition to its ordinary meaning, includes "distribute, leave with, give away, dispose of or deliver." The terms prescribe and administer--not being specially defined--are used in their ordinary meaning, as commonly known and understood. So, then, a physician may in the course of his professional practice prescribe, administer, dispense, distribute, leave with, give away or deliver a narcotic. The right to do these things carries with it the right to possess, because possession is first necessary and without it such rights could not be fully exercised. The term possession, as here used, means the actual care, control and management of the narcotic.

If we understand the state's position, said the court of criminal appeals, it is that since there are facts sufficient to show that the defendant came into the possession of the narcotic by unlawful means, he could not thereafter be in the lawful possession thereof. To accept this theory would require, by judicial construction, writing into the act an additional limitation not found therein--which would be that unless and until a physician came into possession of a narcotic by lawful means, he could not make use of the same in any manner. The act authorized the physician to make unlimited use of the narcotic in the particulars mentioned. We would not be authorized, said the court, by judicial construction, to place a limitation on that right not found in the act. In the light of what has been said, there appears no escape from the conclusion that, under the rights expressly conferred under the act, it is not unlawful for the physician duly licensed by the laws of this state to have in his possession, or possess, narcotic drugs. Since the defendant was a duly licensed practitioner of medicine in this state, his conviction for possessing a narcotic drug is accordingly reversed.—*De Vine v. State, 206 S. W. (2d) 247 (Texas, 1947).*

Blood Grouping Tests: Admissibility in Evidence over Objection of Self Incrimination.—The defendant was found guilty of murder in the first degree and appealed to the Court of Appeals of Maryland.

At the time of the defendant's arrest, he was in a hospital under treatment for iodine poisoning and after being placed in jail he was treated by the county medical officer. The following day another physician visited him, at the request of the state's attorney, for the purpose of getting a sample of his blood. The physician testified that the captain of detectives, who accompanied him on the visit, asked the defendant if he would mind if he took his blood. The defendant held out his arm, the physician took some of his blood and turned the specimen over to the officer. The physician also testified that he listened to the defendant's heart and took his pulse, but did not tell him why he wanted the blood other than that the state's attorney requested it. The captain of detectives corroborated this testimony and said that, in addition, the physician asked if the medicine the county physician had given him the previous night had worked. He too stated that when he asked the defendant if he had any objection to their getting a sample of his blood, the defendant said no and held up his arm, to the physician. The defendant was not informed of the purpose for which they wanted the blood specimen. The defendant testified that the physician asked him if he knew that the iodine he had taken might affect his eyes or his kidneys and said that he would like to take a blood test and a urine specimen. The defendant said he thought they were doing it for his health.

On appeal the defendant contended that the admission of testimony about his blood, taken from his body by a subterfuge, was a violation of his constitutional immunity from giving evidence against himself. We are unable to see where there is any constitutional question involved in this case, the Court of Appeals concluded. There is no substantial difference between obtaining a specimen of blood from an accused and obtaining his fingerprints or physical property, the possession of which by him is a pertinent question at issue in a felony against him. Whatever may be the rule in other jurisdictions we have long since adopted the rule that the admission of evidence thus obtained is not a violation of the Maryland Declaration of Rights, and we so hold in this case. Accordingly the judgment of conviction was affirmed.--*Davis v. State 57 A. (2d) 289 (Md., 1948).*

Extravagant Claims and Promotional Literature as Misbranding.--The defendant was charged with a violation of the federal food, drug and cosmetic act for introducing misbranded drugs into interstate commerce. From a judgment of conviction, the defendant appealed to the circuit court of appeals, seventh circuit.

Section 301 of the food and drug act prohibits the introduction or delivery for introduction into interstate commerce of any drug that is misbranded; section 502 provides that a drug shall be deemed to be misbranded if its labeling is false or misleading in any particular, and section 201 (*m*) defines the term " labeling " to include all labels and other written, printed or graphic matter accompanying such article.

The defendant was a self-styled authority on nutrition and vitamins. Operating under various trade names, he had been producing and marketing his products since January 1941, largely through " health food " stores. The products appear to be, for the most part, compounded of various vitamins, minerals and herbs. No charge of falsehood was made as to the principal labels printed on the packages in which each product was contained. The misbranding charged was contained in a number of printed pamphlets and circulars, and one display placard. The mode of distribution of this literature differed. In some cases it was contained in the carton in which the articles were shipped. More often, it was separately shipped to the same consignees, and in at least one case a period of a year and a half intervened between the shipment of the product and the literature, respectively.

In order to support a misbranding charge, said the court, it is not necessary that the matter alleged to accompany the product be shipped in the same container or even that it be shipped simultaneously. The defendant contended that the literature here involved was not only not shipped in the same carton with the products in all cases, but neither was it intended by him that product and literature should be placed together by the dealer to whom they were sent. His theory was that the literature was intended for advertising, not labeling. All the printed matter, he said, was intended either to be mailed out or to be sold, as indicated by the fact that with the exception of the one display placard, each piece either contained a price mark or a mailing permit with space for address. This showed he contended, that product and literature were not to be distributed together, hence could not be said to accompany each other.

First, said the court, labeling and advertising are not mutually exclusive and the same matter may serve both purposes. Second, the placing of the mailing permit or the price tag on the literature cannot insulate the defendant from liability for introducing the drugs and their related descriptive matter into interstate commerce together by consignment to the same consignee for distribution by him.

The test, the court continued, is not of physical contiguity but of textual relationship. Viewed thus, the products and literature here involved were interdependent because the former lacked the labeling necessary to inform the purchasing public of of their uses and purposes. The labels printed on the immediate containers did not indicate the purposes for which the articles were to be used. The literature was intended and essential to explain the alleged uses of the products. It constituted a supplement to the label physically attached to the container of the product. One of the health food dealers in whose store the " kordel " products were sold admitted that if he were buying one of the products he would have to go to " reliable sources" to know to what use to put the product. Presumably, said the court, those reliable sources were the booklets displayed in racks close by the counter where the drugs were dispensed or lying on the counter where they were available to the public and could be picked up and examined. Some also were wrapped with merchandise or handed to customers. Because the literature was shipped by the defendant or at his order to the same consignees as the products, was related to those products, and was intended for distribution in relation to them, it did accompany the products into interstate commerce within the definition of the act.

With respect to the misrepresentations contained in the accompanying literature, said the circuit court of appeals, we think there can be no serious question. The two booklets, " Nutrition Guide " and " What You Can Do About Relieving the Agonies of Arthritis," were written by defendant, who in the latter is described as "America's leading vitamin and diet expert." " Health Today, Spring 1945," is edited by the same " famous nutrition and vitamin authority." While all purport to be scientific publications of general interest apart from the articles produced and marketed by the defendant, all are replete with references to the " kordel " products and their uses to prevent, ameliorate or cure a vast and diverse variety of ailments, and each conveniently closes with a price list of the various " kordel " products recommended for use therein. All are concerned primarily with promoting the sale of the various products by explaining the need for each, along with extravagant claims as to the usefulness of each. A study of the three pamphlets reveals that the products therein described are recommended for relieving stomach agonies, general weakness, anemia, premature old age, high blood pressure, liver troubles, failing eyesight and sore feet; for maintaining blood energy, muscular activity, sound teeth and gums, healthy skin, hair and eyes, normal functioning of the pituitary and thyroid glands, stomach, intestines, colon, liver and kidneys, and for preventing arthritis and stiff joints, excess weight, catarrh, nervous breakdown, sterility and paralysis. Thus the scheme devised by the defendant for the distribution of his products and related literature contemplates an elaborate system of self diagnosis and medication. The government introduced the evidence of many eminent men in the medical profession to prove the dangerously misleading character of the literature in that the drugs were useless to combat the conditions they were represented to relieve, while delay in correct diagnosis and treatment for those conditions might render treatment useless. All the experts were agreed that, although the claims were absurd and fantastic, they were dangerous in that they tended to lull persons into a false sense of security in reliance on the drugs when they might need professional diagnosis and treatment for conditions which might respond to treatment if correctly diagnosed early enough, but which might become much more serious if not taken care of early. Since the literature, which we have already held accompanied the products, embodies such misleading representations, the court of appeal concluded, it constitutes misbranding within the meaning of the act. Accordingly the conviction of the defendant was affirmed.--*United States v. Kordel, 164 F. (2d) 913 (1948).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

17:213-256 (Jan.) 1948

Heart Disease in Alabama. O. Welch and C. Porter.—p. 213.
Resection of Midthoracic Esophagus for Carcinoma. W. C. Simpson.—p. 221.
Calibration and Use of Photoelectric Colorimeter. H. R. Crookshank.—p. 226.
Caudal Analgesia. W. K. Lloyd.—p. 233.
Chronic Mastoiditis. E. R. Nodine.—p. 237.

17:257-292 (Feb.) 1948

Acute Abdomen. C. N. Carraway.—p. 257.
Penicillin, Streptomycin and Tyrothricin in Dermatology. P. G. Reque. -p. 268.
Fracture of Edentulous Mandible: Open Reduction and Fixation with Tantalum Wire. G. W. Matthews.—p. 273.

American J. Digestive Diseases, Fort Wayne, Ind.

15:1-40 (Jan.) 1948

Acute Pancreatitis: Evaluation of Classification, Symptomatology, Diagnosis and Therapy. H. L. Popper. p. 1.
Contribution to Diagnosis of Acute Pancreatic Necrosis. K. F. Herfort.—p. 5.
Jaundice and Hepatitis: Laboratory Review. S. M. Rabson. —p. 7.
Indications and Contraindications for Gastroscopy. H. Barowsky.—p. 10.
Gastritis and Amebiasis: Gastroscopic Study. T. C. Afendulis.—p. 13.
Appliance for Preventing Leakage of Gastrostomy and Enterostomy. A. Strelinger.—p. 14.
Allergy as Factor in Headaches. J. A. Turnbull.—p. 16.
Carcinoma of Colon Secondary to Chronic Ulcerative Colitis. T. M. Johnson and T. G. Orr.—p. 21.
*Importance of Occult Blood in Stool. W. D. Paul and H. E. Hamilton.—p. 23.

Occult Blood in the Stool.—Paul and Hamilton believe that digital examination of the rectum and the test of a fecal specimen for occult blood should be a routine part of physical examination. Earlier recognition of a disease process in the gastrointestinal tract will be made if this simple and expedient procedure is carried out. A technic employed at the University of Iowa hospitals is as follows: Following the digital examination, the gloved finger is placed over the top of a 3/4 inch (1.91 cm.) test tube containing 5 cc. of water. The tube is shaken so that the adhering stool specimen is washed from the end of the gloved finger, and a drop of this solution is placed on a small piece of filter paper. An orthotolidine tablet is placed on this moistened filter paper and 2 drops of water are permitted to flow over the tablet and down on the filter paper. If occult blood is present, the filter paper about the orthotolidine tablet will turn a blue color of varying intensity within two minutes. Even though there is no visible fecal material adhering to the gloved finger the material obtained will frequently be sufficient to give a positive reaction if the preceding stool specimen contained occult blood.

American J. Obstetrics and Gynecology, St. Louis

55:1-188 (Jan.) 1948

Metallic Sutures and Early American Gynecology. M. P. Rucker.—p. 1.
Human Conceptus During First Two Weeks of Gestation. J. Rock and A. D. Hertig.—p. 6.
Studies of Human Corpus Luteum. Corpus Luteum-Endometrial Relationships in Functional Uterine Bleeding. J. I. Brewer and H. O. Jones.—p. 18.
Atypical Endometrial Hyperplasia Simulating Adenocarcinoma. E. Novak and F. Rutledge.—p. 46.
*Use of Multiple Sources of Radium Within Uterus in Treatment of Endometrial Cancer. A. N. Arneson, W. W. Stanbro and J. F. Nolan.—p. 64.
High Lymphadenectomy and Sympathectomy in Carcinoma of Vulva. E. M. Robertson.—p. 79.
Detailed Anatomy of Paraurethral Ducts in Adult Human Female. J. W. Huffman.—p. 86.
*Culdoscopy a Useful Gynecologic Procedure. R. W. TeLinde and F. Rutledge.—p. 102.
Reactions of Vulva to Systemic Diseases. J. Parks and Shirley Martin.—p. 117.
Clinical and Histopathologic Study of Lesions of Cervix Uteri During Pregnancy. C. F. Fluhmann.—p. 133.
Cervical Dystocia with Special Reference to Fibrous Nature of Cervix. O. H. Schwarz and R. B. Woolf.—p. 151.
Expectant Management of Placenta Previa. T. J. Williams. —p. 169.

Radium in Uterus.—Arneson and his associates say that about 1938 the method of radium treatment of uterine cancer was changed in two hospitals in St. Louis. Previously intrauterine treatment had been given by means of tandems containing from two to three tubes in linear arrangement. That applicator did not always meet the standard requirement of active length extending from the level of the external os to the top of the fundus. The first modification, which employed gauze strips to hold multiple tubes in position, did not prove satisfactory. Many technical difficulties were eliminated by a special instrument developed in 1940. By means of an introducer the number of tubes placed within the uterus was increased considerably. Brass capsules of a standard external diameter were obtained for radium sources. Length of capsules varied according to length of the radium tubes, but the strength per centimeter active length was on the order of 5 or 6 mg. of radium. From ten to twelve such capsules can be packed into a uterine cavity of normal size. Capsules of greater external diameter are used in the cervical canal to maintain patency adequate for removal of the intrauterine radium. Stronger sources are used in the cervical capsules. The authors review observations on 93 patients with endometrial cancer treated between 1936 and 1941. Of the entire group, 45 per cent were considered inoperable. The absolute five year survival rate for the 43 patients treated by radiation alone is 27 per cent. For the 32 patients receiving preoperative roentgen and radium therapy followed by hysterectomy the five year result is 68 per cent. Surgery alone was used in 18 patients, of whom 84 per cent remained well for the same period. Explanation of the unusually good results from hysterectomy alone is made on the basis of favorable clinical material. Among patients treated by radiation alone the use of intrauterine tandems resulted in survival of only 22 per cent, but 32 per cent of those irridiated with multiple capsules are well at the end of the five year period. For treatment by radiation and hysterectomy the use of intrauterine tandems resulted in survival of 54 per cent, but the value for multiple capsules of radium is 79 per cent.

Culdoscopy.—TeLinde and Rutledge report their experience with culdoscopy in 56 cases. The patient is placed in the knee-chest posture. The procedure can be carried out under local or general anesthesia. The uterus, tubes, ovaries, broad ligaments, uterosacral ligaments, infundibulopelvic ligaments, rectal wall, sigmoid, small intestines and often the cecum, appendix and even the ureters can be visualized. The culdoscope may be moved from side to side and rotated as necessary. Culdoscopy is indicated particularly to gain more information in cases in which the history and/or pelvic examination suggest tubal pregnancy. Of the 56 cases of culdoscopy reported here, 37 were for this purpose. Ectopic gestation is more often overlooked and more often diagnosed when not present than any other serious pelvic disorder. Salpingitis was found to be the condition simulating tubal gestation in 18 of the 37 cases. The differential diagnosis between salpingitis and endometriosis may at times offer considerable difficulty. The culdoscopic pictures in both conditions are quite characteristic, and the differentiation is easily made unless the cul-de-sac is obliterated by adhesions. In postmenopausal bleeding culdoscopy may detect a nonpalpable ovarian or tubal neoplasm. In certain endocrine disturbances, such as functional bleeding, functional amenorrhea, ovarian dwarfism and ovarian agenesis, exact knowledge of the anatomic and to some degree the physiologic condition of the ovaries can be obtained only by culdoscopy or exploratory laparotomy. The chief contraindication to culdoscopy is the presence of a fixed mass in the cul-de-sac. The authors regard culdoscopy as a valuable adjunct to gynecologic procedures.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

59:1-156 (Jan.) 1948 Partial Index

*Physiobiology and General Management of Chronic Ulceration Occurring After Irradiation. H. B. Hunt and D. H. Breit.—p. 9.

Master Facial Cast for Rigid Portal Delimitation in Roentgen Therapy of Cancer About Face. S. G. Castigliano.—p. 19.

Herniation of Cerebral Ventricles. C. R. Perryman and E. P. Pendergrass.—p. 27.

Diagnostic Significance of Change in Position of Metallic Foreign Bodies in Brain Abscess. E. H. Wood, Jr.—p. 52.

Some Observations on Diffuse Pulmonary Lesions. H. Felson and G. W. Heublein.—p. 59.

Basal Onset of Reinfection Tuberculosis. H. H. Cherry.—p. 82.

Crater in Uncomplicated *Duodenal Ulcer*: Its Significance in Diagnosis and Treatment. F. E. Templeton.—p. 87.

*Postbulbar Ulcer of Duodenum. R. P. Ball, A. L. Segal and R. Golden.—p. 90.

Bernard Schmidt and His Reflector Camera: Astronomical Contribution to Radiology. P. C. Hodges.—p. 122.

Ulceration After Irradiation.—Influences which may contribute to ulceration following irradiation include, according to Hunt and Breit, systemic disorders such as hypoproteinemia, ascorbic acid (vitamin C) deficiency, allergy, anemia, arteriosclerosis, uncontrolled diabetes and syphilis; poor blood supply; infection of devitalized tissue; foreign body action of devitalized bone, cartilage or fascia; trauma—whether actinic, thermal, mechanical or chemical; inadequate regeneration of tissue due to nutritional disorders; residual or recurrent neoplasm. The occurrence of necrosis following irradiation is to be reduced by promotion of general health, provision of proper nutrition, preservation of blood supply, control of infection, protection against trauma, treatment of lesions while small, and elimination of cancer by the first course of therapy as far as possible. Experimental studies on acute radiodermatitis in rabbits showed onset to be delayed and severity reduced by avoidance of greasy applications, although the reaction was not aggravated by water or dry powder. Clinical observations suggest that the vesicular phase is benefited by sterile bland wet dressings and exposure to the air. Infection can be reduced by prompt closure of the skin and by bacteriostatic and antibiotic drugs. There are various ways to eliminate necrotizing tissues. The use of radon ointment is most effective in promoting regeneration of epithelium.

Postbulbar Ulcer of Duodenum.—According to Ball and his associates, ulcer craters in the duodenum are not commonly found distal to the bulb, but since there is hemorrhage in many of these cases, often of the massive type, it is important that a careful search be made for ulcer craters in the examination of the upper portion of the gastrointestinal tract. Ulcer of the duodenum located distal to the bulb displays a smooth, rounded indentation of the wall at the level of the crater with an eccentric narrowing in all cases examined. Enlarged, distorted mucosal folds, irritability of the bulb and hypermotility are associated observations. The ulcer crater is not always seen. The use of exaggerated oblique projections with the patient in the horizontal position or with the head lowered below the horizontal plane has been found to be helpful in disclosing the lesions of postbulbar ulcer. The incidence of postbulbar ulcer is difficult to evaluate. In cases of hemorrhage from the gastrointestinal tract, particularly in those cases associated with back pain and symptoms of peptic ulcer, the possibility of postbulbar ulcer should be seriously considered.

Annals of Internal Medicine, Lancaster, Pa.

28:1-228 (Jan.) 1948

Pathogenesis of Lupus Erythematosus and Allied Conditions. P. Klemperer. -p. 1.

Cardiac Lesions of Acute Disseminated Lupus Erythematosus. Eleanor M. Humphreys. -p. 12.

Physical Examination: Helps and Hindrances. J.J. Waring. -p. 15.

*Urine Volume and Total Renal Sodium Excretion During Water Diuresis. A.J. Crutchfield Jr. and J.E. Wood Jr. -p. 28.

*Incidence of Heart Disease in 2,000 Consecutive Autopsies. W.B. Wartman and H.K. Hellerstein. -p. 41.

Rheumatism and Arthritis: Review of American and English Literature of Recent Years (Ninth Rheumatism Review). P.S. Hench and others. -p. 66.

Urine Volume and Total *Renal Sodium* Excretion.—Crutchfield and Wood say that the advisability of drastically reducing sodium intake in the edema of congestive heart failure is generally accepted. Recommendations concerning the optimal water intake during such sodium restriction, have ranged from the older view that fluids should be drastically restricted to the opposite extreme, that fluids should be forced even to 5 or 10 liters daily. The authors decided to investigate how fluid intake might be adjusted to assure in the average patient the greatest possible excretion of sodium per day. Approximately *one* hundred observations on water diuresis and sodium excretion have been made on 50 patients. Water diuresis was produced by oral administration of 1,000 cc. of tap water within fifteen minutes. It was found that in a patient who already has adequate urine volume, the exhibition of water diuresis does not increase total renal sodium excretion. To the contrary, in such a patient water diuresis usually decreases total renal sodium excretion. It is further suggested that the optimal urine volume for the patient with congestive heart failure, when related to water diuresis alone, falls between 2 and 3 liters daily. The efficiency of osmotic diuretics is impaired when combined with water diuresis. Xanthines and mercurophylline injection disproportionately increase urinary volume and total renal sodium excretion, favoring the latter. This suggests that the primary renal action of these substances may be depression of tubular reabsorption of sodium.

Incidence of Heart Disease.—Wartman and Hellerstein present a statistical study of the incidence of heart disease in 2,000 consecutive necropsies. The term heart disease is used in an anatomic sense and includes all organic lesions of the pericardium and heart, but it does not necessarily mean clinically evident disease. Nearly two thirds of the necropsies involved males. The age curve of the series was similar to that of deaths from all causes in the United States Registration Area for 1940. Forty-nine and two-tenths per cent of the patients had some cardiac lesion, although not all were sufficiently important to have contributed to death. Nineteen per cent died directly of heart failure. The cardiac lesions were divided into rheumatic heart disease, hypertensive heart disease, coronary artery disease and a miscellaneous group. Thirteen and six-tenths per cent of the total group had hypertensive heart disease. The age, sex and color distribution of 120 patients with rheumatic heart disease was as follows: the mitral valve was involved in every case, the aortic in 85, the tricuspid in 53 and the pulmonic in 15. Forty-nine patients with rheumatic carditis lived to be 45 years old or more. There were 16 cases of endocarditis lenta among the 120 cases of rheumatic heart disease. The coronary arteries were significantly diseased in 51 per cent of the 984 patients with heart lesions, or 25 per cent of the total series. Eighty-four per cent of patients with coronary thrombosis also had myocardial infarcts; 16 per cent died without myocardial infarcts, many of them suddenly. The factors concerned in sudden death following coronary obstruction were severe generalized coronary arteriosclerosis and multiple occlusions with occlusion of the predominant artery. The incidence of myocardial infarcts in the total necropsy series was 8.2 per cent. The left ventricle was the most frequent site of an infarct. The commonest complications of myocardial infarction were mural thrombi, fibrinous pericarditis, subsequent myocardial infarcts, aneurysm formation and cardiac rupture. Peripheral thromboembolism occurred in 45 per cent of cases of myocardial infarcts and were a main or contributory cause of death in 43 of 160 cases.

Archives of Otolaryngology, Chicago

47:1-112 (Jan.) 1948

Question of Prothrombinopenic Hemorrhage from Post-Tonsillectomy Use of Chewing Gum Containing Acetylsalicylic Acid. G. S. Livingston and E. R. Neary.—p. 1.

Plastic Repair of Obstructing Nasal Septum. S. Fomon, J. G. Gilbert, A. G. Silver and V. R. Syracuse.—p. 7.

*Chemical Meningitis Following Use of Tyrothricin: Clinical and Experimental Study. F. J. Otenasek and D. Fairman.—p. 21.

Nonvibratory Tinnitus. Factors Underlying Subaudible and Audible Irritations. E. P. Fowler.—p. 29.

*Nasal Hemorrhage. Studies of Ascorbic Acid, Prothrombin and Vitamin K. H. Neivert, Recha Engelberg and L. A. Pirk.—p. 37.

Congenital Laryngeal Web: Its Eradication. D. L. Poe and P. S. Seager.—p. 46.

Morphologic Deformities of Lower Lateral Cartilages. J. Daley.—p. 49.

Paranasal Sinuses. S. Salinger.—p. 72.

Chemical Meningitis Following Use of Tyrothricin.—Otenasek and Fairman have not found reports of ill effects in human beings from clinical use of tyrothricin. They report 2 patients seen at the Johns Hopkins Hospital exhibiting disastrous effects from this drug. Morbid effects in both patients were seen immediately after a frontal sinus had been irrigated with tyrothricin. There were severe headache, delirium, high fever and, in a very few hours, clinical and laboratory signs of meningitis. In both, the acute inflammatory process lasted less than a week, with apparent clinical cure but with delayed production of hydrocephalus as a consequence of adhesive arachnoiditis. The first patient had a stormy convalescence and left the hospital with no perception of light in the right eye and disturbance of visual acuity in the left. There also was some unsteadiness. The second patient died. Necropsy revealed hydrocephalus and chronic meningitis with thickening and round cell infiltration of the leptomeninges. The clinical experience with these 2 patients prompted experiments on animals. Of 35 dogs in whom 1 cc. of a 1:1,000 suspension of tyrothricin was injected into the cisterna magna, 18 died either immediately or within a few hours. Those with a survival period of a few hours showed massive swelling of the medulla oblongata at the site of injection, with almost complete obliteration of the foramen of Magendie in some cases. Animals surviving longer periods were killed at different intervals. The final picture revealed gross and microscopic thickening of the leptomeninges, with or without hydrocephalus. The authors stress that even extremely small amounts of tyrothricin in the cerebrospinal fluid may produce disastrous effects. When an opening of the dura mater is known to exist after a radical sinusotomy, irrigations with this agent should be scrupulously avoided. Routine and indiscriminate tyrothricin irrigation of infected cavities close to the subarachnoid space is to be avoided.

Nasal Hemorrhage.—Neivert and his associates studied 104 consecutive patients presenting themselves with nosebleed at the Presbyterian Hospital, New York. Ascorbic acid level and prothrombin time were normal in only 11 of these patients. The plasma ascorbic acid level was subnormal in 68 patients, of whom 35 also showed prothrombinopenia. There were 25 patients whose plasma ascorbic acid concentration was normal but whose prothrombin activity was subnormal. The nosebleed in 57 patients was traceable to one of the generally recognized local or systemic causes, but in 47 patients it was not. Vitamin therapy was instituted in 62 of the 93 patients found to be deficient in ascorbic acid and/or prothrombin. The clinical response could be determined in only 36 patients. Of these, 27 were improved. The extremely high incidence of ascorbic acid and prothrombin deficiency in cases of epistaxis and the gratifying clinical results attending the administration of ascorbic acid and/or a vitamin-K-like substance in some of these cases suggest that vitamins C and K have a definite place in the management of nasal hemorrhage.

Blood, New York

3: 1-128 (Jan.) 1948

Treatment of Pernicious Anemia by Special Diet. G. R. Minot and W. P. Murphy.—p. 8.

Pernicious Anemia from Addison to Folic Acid. R. L. Haden.—p. 22.

Twenty Years of Liver Therapy. W. P. Murphy.—p. 32.

*Pernicious Anemia, Nutritional Macrocytic Anemia, and Tropical Sprue. Lucy Wills.—p. 36.

*Relation of Therapy in Pernicious Anemia to Changes in Nervous System, Early and Late Results in Series of Cases Observed for Periods of not Less Than Ten Years, and Early Results of Treatment with Folic Acid. F. H. Bethell and C. C. Sturgis.—p. 57.

*Development and Progression of Subacute Combined Degeneration of Spinal Cord in Patients with Pernicious Anemia Treated with Synthetic Pteroylglutamic (Folic) Acid. J. F. Ross, H. Belding and B. L. Paegel.—p. 68.

Pernicious Anemia Caused by Diphyllobothrium Latum, in Light of Recent Investigations. B. Von Bonsdorff.—p. 91.

Study of Myelogram (Bone Marrow Puncture) in Pernicious Anemia and Problem of Megaloblast. J. Mallarmé.—p. 103.

*Refractory Megaloblastic Anemia. L. S. P. Davidson.—p. 107.

Further Observations on Specificity of Folic Acid Molecule. T. D. Spies, G. G. Lopez, R. F. Stone and others.—p. 121.

Macrocytic Anemias.—Wills limits her discussion to the three principal types of macrocytic anemia: pernicious anemia, nutritional macrocytic anemia and tropical sprue. The interrelationship of these three entities is reviewed on the basis of reports in the literature and of unpublished work. The author considers these three clinical conditions as distinct entities possessing a common characteristic in the presence of a panhemopoietic dystrophy characterized by a megaloblastic erythropoiesis and corresponding changes in the myeloid cells and platelets. This panhemopoietic dystrophy possibly results from the breakdown of an intracellular enzyme system, but the deficiencies causing the breakdown differ; in pernicious anemia the liver principle is apparently at fault, in endemic nutritional macrocytic anemia another unidentified factor is missing and in sprue either or both may be at fault. Folic acid is active therapeutically in all three diseases, but in all it fails to restore completely normal blood levels. Pernicious anemia is probably due to a genetic defect which produces atrophy of the gastric mucosa. As a consequence of this interference with gastric function there is failure in the formation or absorption of the liver factor and possibly of another neurotropic factor, which failure results in the development of a macrocytic megaloblastic anemia and the characteristic changes in the nervous system. Indefinite replacement therapy is necessary, as the changes in the gastric mucosa are irreversible. Endemic nutritional macrocytic anemia is a food deficiency in a factor other than the liver principle, possibly a coenzyme present in or associated with good biologic protein and the vitamin B_2 complex. A hemolytic type of the disease occurs in areas of high malarial incidence. After successful treatment the disease does not relapse if the diet is satisfactory. Pregnant women are particularly liable to development of the disease. Tropical sprue is due to a functional disorder of the intestine, possibly primarily a failure in phosphorylation of fatty acids, glycerol and dextrose. Diarrhea and macrocytic anemia are present. The macrocytic anemia may be due to a failure in absorption of one or more essential hemopoietic factors or to a lack of Castle's intrinsic factor. A high protein diet and liver extract are most important in the treatment.

Therapy and Nervous System in Pernicious Anemia.—Bethell and Sturgis analyzed the clinical course, particularly the neurologic changes, in 70 patients with pernicious anemia, who were observed for periods of not less than ten years. Most of the patients, whether treated with oral preparations of stomach or liver, or with parenteral crude or refined liver extracts, showed significant improvement of their neurologic manifestations. The period of improvement was limited, essentially, to the first year of therapy. Thirty-six patients were maintained in complete hematologic remission. Fifteen of the patients did not adhere to an optimal therapeutic regimen, and their blood values were frequently abnormal, although definite relapses did not occur. In the former group there was no progression of neural lesions. In the latter such adverse changes as did occur were transient and reversible on resumption of adequate therapy. Nineteen patients had clinical and hematologic relapses after their initial response to intensive therapy. The end results in this group were not so favorable, but nevertheless serious progression of spinal cord involvement was seldom observed. The observations do not justify the conclusion that irregular or suboptimal therapy is without serious risk. The early results of treatment with synthetic folic acid, as observed in 15 patients, indicate that both the hematologic and the neurologic response to this form of therapy are much less predictable than is the case with stomach or liver preparations. It is suggested that disturbance of folic acid metabolism is not the sole cause of either the hematologic or the neurologic manifestations of pernicious anemia but that inability to utilize folic acid effectively may play a part in the development of both myeloid and neural abnormalities.

Spinal Cord Degeneration and Folic Acid.—Ross and his associates substituted synthetic folic acid (pteroylglutamic acid) for liver extract in treatment of 22 patients with pernicious anemia. The patients received this treatment for from eight to seventeen months. Satisfactory blood levels were maintained in all cases receiving daily oral doses of 1.25 to 15 mg. Severe hematologic relapse occurred within six months in a case treated with monthly injections of 30 mg. of the preparation. Synthetic folic acid in oral doses of 15 mg. daily induced satisfactory hematopoietic responses in 3 patients with pernicious anemia in severe relapse, but only slight hematopoietic response was obtained in a fourth patient with mild pernicious anemia but severe subacute combined degeneration of the spinal cord. Ten patients manifested a significant improvement in blood values for a few months after substitution of folic acid for liver extract. With one exception these subsided after six or more months to pre-folic acid levels comparable with those previously maintained with liver extract alone. These observations suggest that a combination of orally administered folic acid and parenterally injected liver extract may maintain a better hematologic status than either substance alone. A previously untreated patient with severe subacute combined degeneration of the spinal cord failed to show improvement in neural disease during twenty-eight days of folic acid therapy. Eleven patients manifested, or showed progression of, subacute combined degeneration of the spinal cord during folic acid treatment. Neurologic disease developed in most of these patients when the peripheral blood was normal. The institution of liver extract therapy in addition to folic acid in 5 patients in whom there developed subacute combined degeneration during folic acid maintenance therapy failed to prevent progression of the disease in 4 cases and only partially arrested the disease in the fifth, in which improvement occurred more rapidly when folic acid was discontinued. Subacute combined degeneration occurred with greater frequency in patients on large daily doses of folic acid than it did in patients with small or intermittent doses. This suggests the possibility that folic acid in large daily doses may actually precipitate or aggravate neurologic disease.

Refractory Megaloblastic Anemia.—Davidson applies the term refractory megaloblastic anemia to cases which failed to respond hematologically and clinically to the parenteral administration of an amount of liver extract which has been proved to produce an optimal response in cases of addisonian pernicious anemia. The preparation employed had been found to be potent in a dose of 2 cc. when administered parenterally in a large number of cases studied during the past ten years. Every patient with refractory megaloblastic anemia received at least twice this dose after admission to hospital. During the past six years 59 patients with megaloblastic anemia partially or completely refractory to potent liver extracts given parenterally have been investigated in Edinburgh. Thirty-four of these cases were associated with pregnancy, the puerperium or the sprue syndrome. No explanation of the cause of the megaloblastic anemia was discovered in the remaining 25 cases. Excellent therapeutic effects were obtained by proteolysed liver or folic acid in the 25 cases of idiopathic refractory megaloblastic anemia. With regard to the mechanisms involved in refractoriness to potent parenteral liver extracts the author suggests that chemical purification of liver extracts for parenteral use may remove some essential factor which is necessary for the restoration of normal blood formation in certain cases of megaloblastic anemia. It is possible that an unknown hematinic principle, in addition to the liberating factor in purified parenteral liver extract and folic acid, is required for the complete restoration of normoblastic blood formation.

Diseases of Nervous System, Chicago

9:1-28 (Jan.) 1948. Partial Index

Management of Speech Disorders in Hospital Clinic. W. G. Peacher and Georgiana M. Peacher. -p. 3.
Maintenance Treatment in Schizophrenia. S. Weisz and Jane N. Creel. -p. 10.
•Clinical Trial of 10820, New Synthetic Analgesic. N. A. Bercel. -p. 15.
Review of Literature on Group Treatment of Psychoses. S. Gifford and J. Mackenzie. -p. 19.
Observations Noted During Course of Group Treatment. J. Fidler Jr. and C. Standish. -p. 24.

Clinical Trial of New Synthetic Analgesic.—Bercel says that the new analgesic drug 6-dimethylamino-4,4-diphenyl-3-heptanone, known as 10820 or methadon, appears to have a morphine-like effect. Administrations of 2.5 mg. of Methadon raised the pain threshold to the same extent as did 10 mg. morphine sulfate. Bercel summarizes experiences with this new analgesic drug on 25 selected patients, all of whom had severe pain. The drug was given in various doses and in a variety of ways. More or less complete relief from pain was obtained by all but 3 patients. Ten patients complained of side effects. In 5 administration of the drug had to be discontinued because of undesirable reactions due to sensitivity. Skin tests are advisable. After daily administration of 5 to 60 mg. of the drug for periods varying from two to twelve weeks, the sudden withdrawal produced no physiologic withdrawal phenomena. The drug appeared to be a potent analgesic with an effect similar to morphine and demerol.

Journal of Mount Sinai Hospital, New York

14:891-940 (Jan.-Feb.) 1948

Application of Isotope Technic to Problems of Biology and Medicine. D. Rittenberg.—p. 891.
Intestinal Irrigation in Treatment of Certain Types of Uremia: Preliminary Report. G. D. Oppenheimer and S. Rosenak.—p. 908.
Convulsions Under General Anesthesia. J. Barcham and B. H. Eliasberg.—p. 912.
Aneurysms of Anterior Portion of Circle of Willis Causing Cerebral Hemorrhage. M. Ostow and S. Berman.—p. 918.
Auricular Tachycardia and Auriculo-Ventricular Dissociation Following 1.2 Mg. of Digitoxin in One Dose. J. Stone.—p. 924.
Foreign Body in Second Portion of Duodenum Perforating Pelvis of Right Kidney. M. J. Mackby.—p. 929.
Effusion in Temporomandibular Joint Complicated by Otitis Media. J. G. Druss.—p. 931.
Cecostomy for Prolonged Colonic Ileus. H. E. Leiter and A. S. Lyons.—p. 934.

J. Neuropathology & Exper. Neurology, Baltimore

7:1-122 (Jan.) 1948

Pallial Component in Hepato-Lenticular Degeneration. R. Richter.—p. 1.
•Hemochromatosis of Central Nervous System. Meta A. Neumann.—p. 19.
Studies on Physiology and Therapy of Convulsive Disorders: II. Some Properties of Experimental Convulsions. J. E. P. Toman, E. A. Swinyard, M. Merkin and L. S. Goodman.—p. 35.
Mode of Extension of Contrast Substances Injected into Peripheral Nerves. J. D. French, W. H. Strain and G. E. Jones.—p. 47.
•Myotonia Atrophica: Histopathologic Considerations. G. B. Hassin and B. Kesert.—p. 59.
Bone Formation and Destruction in Hyperostoses Associated with Meningiomas. H. Freedman and F. M. Forster.—p. 69.
Multiple Primary Intracranial Tumors. Meningioma Associated with Glioma: Report of Case. W. S. Alexander.—p. 81.
Human Pyramidal Tract. XVI. Reaction of Individual Axons in Selected Cases with Acute Cerebral Lesions. A. M. Lassek.—p. 89.

Hemochromatosis of Central Nervous System.—Neumann says that hemochromatosis, so named by von Recklinghausen, was first isolated by him as a clinical entity in 1889. Since that time more than 300 cases have been reported. Sheldon's study lists the chief criteria for the recognition of the disease as follows: brown pigmentation of the skin, widespread pigmentation of the viscera, muscles and connective tissues, cirrhosis of the liver and pancreas, and diabetes. Pigmentation of the brain is seldom mentioned in case reports, although it has been stated that the choroid plexus is almost uniformly involved. Neumann's case greatly resembled that reported by Lewey and Govons. There was relatively slight involvement of the viscera. The main neurologic signs accompanying the disorder are progressive ataxia and deafness. The cerebrospinal fluid is xanthochromic. Vomiting occurs frequently. The primary pathologic process is believed to have originated in the teloid roof of the fourth ventricle. In Neumann's case the superior surface of the cerebellum was intensely damaged. It is probable that this case and the few similar recorded cases constitute a clinicopathologic entity.

Histopathologic Aspects of Myotonia Atrophica.—Hassin and Kesert present the results of histopathologic studies on 3 patients with myopathies together with brief summaries of the clinical aspects. They stress that in myotonia atrophica there is a disproportion between the pathologic and clinical features. Myotonia atrophica is a definite morbid entity embodying some clinical features of myotonia congenita, progressive degenerative myopathies and extra muscular dystrophies (cataracts, baldness and other anomalies). The histologic changes are not specific, being similar to those seen in paramyoclonus multiplex and myotonia congenita (Thomsen's disease), but differ from those occurring in exquisitely inflammatory and degenerative diseases of the muscles. Myotonia atrophica is, like myotonia congenita and paramyoclonus multiplex, a metabolic disturbance which is probably responsible for the abnormal muscular activity that ultimately brings on pathologic changes.

Journal of Pediatrics, St. Louis

32:1-112 (Jan.) 1948

*Treatment of Acute Respiratory Infections in Children with Orally Administered, Unbuffered Penicillin Solutions. W. S. Hoffman, J. W. Hofer and H. Gordon. —p. 1.

Glomerular Filtration Rate, Effective Renal Blood Flow and Maximal Tubular Excretory Capacity in Infancy. J. R. West, H. W. Smith and H. Chasis. —p. 10.

New Anomaly of Aorta. Left Aortic Arch with Right Descending Aorta. R. N. Paul. —p. 19.

*Treatment of Pertussis and Pneumonia Complicating Pertussis. Role of Hyperimmune Gamma Globulin and Sulfadiazine. H. Brainerd. —p. 30.

*Restoration of Diptheria Immunity Without Injections (Bousfield's Method). P. Masucci, H. Gold and R. J. DeFalco. —p. 35.

Heart in Normal Infants and Children. Incidence of Precordial Systolic Murmurs and Fluoroscopic and Electrocardiographic Studies. N. Epstein. —p. 39.

Eosinophilic Granuloma of Bone and Hand-Schuller-Christian Disease. Frances M. Love and Gladys J. Fashena. —p. 46.

Petechiae in Children: Incidence, Seasonal Variations and Etiology. E. E. Brown. —p. 55.

Acrodynia: New Treatment with BAL. L. Bivings and G. Lewis. —p. 63.

Adjustment of Parents to Children in Home. S. Berman. —p. 66.

Oral Penicillin for Respiratory Infections.— Hoffman and his co-workers treated 143 infants and children who had acute respiratory infections with a palatable solution of soluble tablets of crystalline potassium penicillin G without buffers. Dosage to be used every three hours for each age group was determined by an evaluation of assays of the plasma penicillin levels obtained after single doses in 209 control infants and children. Those between the ages of 1 and 12 years showed, one hour after the dose, average levels of 0.12 unit per cubic centimeter, and at three hours, 0.03 to 0.05 unit per cubic centimeter. Though dosage had been based on age, therapeutic plasma levels were obtained with doses of approximately 3,000 units per kilogram (or 1,400 units per pound). Infants under 1 year showed much higher levels, well sustained after three hours. High penicillin concentrations were probably produced by the relatively poor renal function of such young infants. In 94 (65.7 per cent) of the patients treated, fever subsided within forty-eight hours and clinical improvement occurred. Fair results were achieved in 26 (18.2 per cent) and poor results in 23 (16.1 per cent). Evaluation on the basis of positive bacterial cultures or high white blood cell counts only slightly increased the percentage of satisfactory results. Yet it was certain that a virus component was present in many cases. Plasma penicillin levels obtained were of the same order as those found in assays. Urticaria occurred in only 1 patient and there was only occasional vomiting. Thus oral administration of penicillin without buffers is to be considered a convenient and satisfactory method of treatment of respiratory infections in children, if adequate doses are used. Failure of response in forty-eight hours is the signal for increased dosage or change to parenteral penicillin.

Pertussis and Pneumonia Complicating Pertussis.— Brainerd treated 26 infants, average age 7.9 months, who had whooping cough complicated by pneumonia and 26 infants, average age 9.4 months, who had uncomplicated pertussis; he gave intramuscular injections of 2.5 cc. of pertussis hyperimmune gamma globulin on each of four successive days with a total dose of 10 cc. All patients with pneumonia were also treated with sulfadiazine. Response to treatment in the first group with pneumonia was considered excellent in 2, good in 9, moderate in 7 and equivocal in 5; 1 patient became worse, although he later recovered. Two patients died. In the second group results of treatment were excellent in 14, good in 4, moderate in 4 and equivocal in 4. No patient became worse or died. It was striking that no patient in this group contracted pneumonia or any other complication of pertussis. Hyperimmune gamma globulin appeared to shorten the course, lessen the severity and reduce the rate of complications. In combination with sulfadiazine it appeared to affect favorably the mortality rate of pertussis complicated by pneumonia. The maximum therapeutic effect of hyperimmune gamma globulin was obtained in patients treated during the first seven days of illness.

Bousfield's Reimmunization Against Diphtheria.— Masucci and his co-workers gave a varied dose of hard compressed tablets in which diphteria toxoid was incorporated to a group of 22 persons who had been immunized previously or had at some time come in contact with diphtheria, and to a second group of 15 Schick-positive persons who had no previous history of immunization or of exposure to the disease. In the first group some were given four tablets for seven days; others received three tablets for seven days and the remainder of the group received two tablets daily for seven days. The second group received four tablets daily for seven days. The tablets were placed under the tongue until they disintegrated completely. Bousfield's observation that diphtheria toxoid antigen can be absorbed effectively by the mucous membranes of the upper portion of the alimentary tract has been confirmed. In general persons who had received previous diphtheria antigen or who had been exposed to the disease showed a definite increase in antitoxin titer. In some the increase was pronounced. This method of immunization was ineffective in those persons who apparently never had a primary stimulus. The amount of antigen absorbed is sufficient to act as a booster dose but is not sufficient to provide an adequate stimulus for primary immunization. There were no local or general reactions. Bousfield's method therefore appears to be the most promising of all the nonparenteral methods of reimmunization thus far proposed. The large dose required (2,100 Lf units) may hinder its practical application.

Minnesota Medicine, St. Paul

31:1-120 (Jan.) 1948

Follow-Up Diagnosis on Patients with X-Ray Lesions with Special Emphasis on Tuberculosis. W. Roemmich. —p. 29.

Evaluation of Anticoagulant Therapy in Deep Venous Thrombosis of Lower Extremities. C. Dennis. —p. 37.

Early Postoperative Ambulation. C. H. Meed. —p. 40.

Hypertension—Medical Treatment. W. D. Coventry. —p. 42.

Hypertension—Surgical Treatment. H. F. Buchstein. —p. 45.

Abdominal Emergencies in General Practice. J. F. Norman. —p. 49.

Bowel Obstruction. Analysis of 148 Cases. A. C. Skjold. —p. 52.

New England Journal of Medicine, Boston

238:73-106 (Jan. 15) 1948

Present-Day Status of Poliomyelitis. W. T. Green.—p. 73.
*Treatment of Polycythemia Vera by Spray Irradiation. W. Richardson and L. L. Robbins.—p. 78.
Ovarian Conservation During Surgery with Reference to Bilateral Dermoids and Endometriosis. A. A. Levi.—p. 83.
Thoracic Tenderness in Pulmonary Infarction. J. Godfrey.—p. 86.
Syphilis. G. M. Crawford.—p. 87.
Carcinoma of Breast: Metastases to Lungs, Liver, Axillary, Mediastinal and Retroperitoneal Lymph Nodes, Ovary and Vertebras. Chylous Ascites and Hydrothorax.—p. 94.
Malignant Lymphoma, Reticulum-Cell Sarcoma Type, Involving Mediastinal and Other Lymph Nodes, Kidneys, Adrenal Glands, Lungs, Intestine, Stomach, Thyroid Gland and Bones.—p. 97.

Spray Irradiation in Polycythemia Vera.—According to Richardson and Robbins, treatment of polycythemia vera by spray irradiation was instituted at the Massachusetts General Hospital in 1932. Irradiation is given with the intention of covering a field extending from the neck to the knees. This requires a long target-skin distance, which varies from 215 to 250 cm., and can usually be accomplished with a 20 by 20 cm. cone. The area is centered at the level of the crest of the ilium, and anterior and posterior fields are treated on alternate days. The kilovoltage is 200; filtration is obtained with 0.5 mm. of copper and 1 mm. of aluminum, which gives a half layer value of 0.92 mm. of copper. The daily dose varies from 20 to 30 r measured in air, and the total dose in a series of treatment in usually 500 r. A white blood cell count is taken at the end of a week and at shorter intervals as the cells decrease. Treatment is stopped when the count falls below 5,000 to 6,000. Twelve of the 28 patients who have received spray irradiation for polycythemia vera are dead, but 4 died of causes other than the disease or its treatment. Of the 16 living patients, 13 are free of symptoms attributable to polycythemia; 1 has hypertension, 1 is anemic and 1 is still polycythemic and is considered a therapeutic failure. One patient has a refractory anemia, possibly or probably attributable to roentgen therapy. In no patient has there developed leukemia, a leukemic state or myeloid metaplasia. Phlebotomy is contraindicated in polycythemia vera except in the treatment of acute symptoms. Spray irradiation is considered the treatment of choice. The use of radioactive isotopes is discussed briefly.

Pennsylvania Medical Journal, Harrisburg

51: 385-480 (Jan.) 1948

Trends in Modern Psychiatry. N. D. C. Lewis.—p. 405.
Surgical Management of Hypertension. J. W. Shirer.—p. 410.
Program of Commission on Public Health and Preventive Medicine. P. F. Lucchesi.—p. 415.
*Life Expectancy in Cancer of Prostate. R. P. Beatty.—p. 419.
Diagnosis and Treatment of Migraine. Edith E. Nicholls.—p. 423.
Abnormal Uterine Bleeding. E. J. Bateman.—p. 427.
Stem Pessary in Management of Primary Dysmenorrhea. E. A. Schumann and M. L. McCall.—p. 431.
Anesthetic Management of the Aged. C. S. Turville and R. D. Dripps.—p. 434.

Life Expectancy in Cancer of Prostate.—Beatty points out that it is seven years since investigation of the effect of endocrines on prostatic carcinoma was initiated. In this period management of this disease has been completely revolutionized. A life expectancy of one to two years has been lengthened to an average of three years, during most of which time the patient lives in comparative comfort. In this series, which covers a period of about five years, the average life expectancy of the patients who have been followed is 3 years for those still living and 3.4 years for those who have died. In the recent cases covering the past two years it is hoped that as the result of early recognition and prompt radical surgery survivals of five to ten years will be the rule rather than the exception.

Plastic & Reconstructive Surgery, Baltimore

2: 517-644 (Nov.) 1947 Partial Index

Restoration of Nose, Lip and Maxilla by Surgery and Prosthesis. V. H. Kazanjian.—p. 531.
*Treatment of Facial Paralysis by Tantalum Wire Suspension: Preliminary Report. L. W. Schultz and E. F. Fowler.—p. 538.
Free Skin Graft—Immobilization with Plaster. L. Zeno.—p. 549.
Surgical Treatment of Pressure Sores. S. Gordon.—p. 557.
Use of Neck Tubed Pedicles in Reconstruction of Defects of Face. W. B. Macomber and W. T. Berkeley.—p. 585.

Tantalum Wire Suspension in Facial Paralysis.—Schultz and Fowler say that Schuessler has substituted tantalum wire and thin sheet tantalum saddles in place of fascia lata as the suspensory material. Advantages claimed for this method induced the authors to utilize Schuessler's method in 2 cases. They noticed a tendency of the saddles to cut through the muscle bundles. One other disability produced by a complete facial paralysis is the inclination toward ballooning out of the paralyzed cheek in the enunciation of certain syllables. Futhermore, patients with facial paralysis who must wear dental plates have difficulty in maintaining their denture in position, since the action of the musculature of the unparalyzed cheek acts to force the denture toward the paralyzed side and loosen its contact with the alveolar ridge. The use of tantalum gauze in the repair of hernial defects suggested to the authors a means of overcoming both the cutting effect of the saddles and the flaccidity of paralyzed cheek muscles. They believe that if moderately large segments of tantalum gauze are implanted in the facial tissues the surrounding fibrous bands of tissue growing through the mesh will allow a more equitable distribution of the pull placed on them by a tantalum wire suspension than would a similar pull placed on the small amount of tissue enclosed by a tantalum saddle. Such an implanted gauze of tantalum wire will, if made sufficiently large and accurately placed, also lend support to the atrophic cheek and will aid in prevention of the ballooning out effect and the unwelcome mobility of the dentures. Case reports illustrate experiences both with Schuessler's method and with the modification developed by the authors. They admit that the suspension of paralyzed muscles cannot produce a result comparable to that produced by a repair of the facial nerve, which adequately reinnervates the paralyzed facial musculature.

Psychoanalytic Quarterly, Albany, N. Y.

16:459-618 (Oct.) 1947

Psychodynamics of Masochism. B. Berliner.—p. 459.
Some Observations on a Form of Projection. L. J. Saul.—p. 472.
Basic Mental Concepts: Their Clinical and Theoretical Value. E. Glover.—p. 482.
Fallacious Use of Quantitative Concepts in Dynamic Psychology. L. S. Kubie.—p. 507.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Urology, London

19:197-260 (Dec.) 1947. Partial Index

Aseptic Prostatectomy. F. E. Stock. -p. 206.
Chronic Pyelonephritis. J. H. Carver. -p. 223.
Case of Renal Carbuncle Treated by Penicillin. W. R. S. Hutchinson and J. V. S. A. Davies. -p. 229.

Indian Medical Gazette, Calcutta

82:443-508 (Aug.) 1947. Partial Index

Hypoproteinemia Due to Utilization of Plasma Protein for Erythropoiesis. C. R. Das Gupta and J. B. Chatterjee. -p. 445.
Further Observations on Plague. A. T. W. Simeons and K. D. Chhatre. -p. 447.
Blackwater Fever. A. K. Nandi. -p. 451.
*Death From Sternal Puncture. P. N. Bardhan. -p. 459.
Suprapubic Prostatectomy with Special Reference to Penicillin Treatment. A. D. Bhandari. -p. 469.

Death From Sternal Puncture.—Bardhan presents histories of 2 patients in whom death occurred after sternal puncture. The guard on the puncture needle, which had been at 8 and 11 mm., respectively, in these 2 patients, had not slipped. In both cases the needle had punctured the posterior plate of the sternum only to a minute degree. However, the resulting laceration in the right ventricle was nearly an inch (2.5 cm.) long in each case. Subsequent studies on cadavers indicated that with the force of the jerky movements associated with sternal puncture, the sternum could be pressed down for nearly an inch and the soft tissues could be reduced in depth up to 4 mm. If the anterior mediastinum, which is, after all, only a potential space, is fully obliterated by the heart and there is an unsuspected increase in the range of the needle, there is nothing to prevent a traumatic rupture of the heart. There can be little doubt that the two deaths occurred in the foregoing manner. Apprehension caused holding of the breath; this in turn led to stretching of the heart and its approximation to the sternum. Jerky movements caused an unsuspected increase in the range of the needle. The needle then pierced the posterior plate of the sternum and caused a small prick in the heart. The heart having been put on maximal stretch, the prick rapidly became converted into a laceration by the rising intracardiac pressure. Hemopericardium followed, leading to mechanical arrest of the heart and to death.

Lancet, London

2:933-968 (Dec. 27) 1947

Visceral Pain. H. Cohen. -p. 933.
Comprehensive Student-Health Service. A. H. Macklin. -p. 935.
Compulsory Physical Education for University Students. R. H. Bolton. -p. 938.
Health Examinations of Students: Pilot Survey in Oxford. R. W. Parnell. -p. 939.
*Familial Idiopathic Methemoglobinemia: 5 Cases in One Family. Q. H. Gibson and D. C. Harrison. -p. 941.
Rh Factor and Hemolytic Disease of Newborn in Jerusalem Jews. J. Gurevitch, A. Brzezinski and Z. Polishuk. -p. 943.
Membranous Nature of Interstitial Connective Tissue. T. D. Day. -p. 945.
Glossopharyngeal Zoster: Followed by Varicella in Two Contacts. F. J. Wright. -p. 946.

Familial Idiopathic Methemoglobinemia.—Gibson and Harrison present observations on a family with idiopathic methemoglobinemia. The condition was discovered in 1 member of this family when he attended the outpatient department of a hospital for a minor injury. He was referred to the authors because of his cyanosis, and it was found that his blood contained a considerable amount of methemoglobin. Under treatment with ascorbic acid the methemoglobin content of the blood decreased, but the patient was not concerned about his cyanotic color and did not continue treatment. Several years later his identical twin brother attended hospital for an injury. He too was cyanotic, and examination revealed methemoglobin in the blood. When he said that several other members of his family were abnormal in color, 8 of the 9 siblings were examined and 5 proved to have methemoglobinemia. The father's blood was normal; the mother, who was distantly related to the father, had died at the age of 48 but had never been cyanosed. The blood methemoglobin of patients with methemoglobinemia can be kept at a low level with daily doses of ascorbic acid, and cyanosis is then hardly noticeable. The action of a single dose of methylene blue, even when taken by mouth, is much more rapid and complete. It seems preferable, however to recommend continuous treatment with ascorbic acid, a natural food constituent, rather than with methylene blue, which might have an unsuspected toxic action after prolonged dosage. It may be desirable to supplement the action of ascorbic acid with an occasional dose of 0.3 Gm. of methylene blue by mouth, particularly if the cyanosis shows signs of returning as the result of temporary failure to keep up the intake of ascorbic acid. The authors believe that the abnormal amount of methemoglobin is due not to any defect of the bone marrow but to a disturbance in the equilibrium between hemoglobin and methemoglobin, which in turn is probably due to a deficiency in enzymes. Erythrocytes of patients with idiopathic methemoglobinemia have been observed to be deficient in a coenzyme factor.

Medical Journal of Australia, Sydney

2:677-708 (Dec. 6) 1947

Silver Spoons and Golden Genes. A. Newton. -p. 677.
*Investigation of Benzene and Toluene Poisoning in Royal Australian Air Force Workshops. Mildred Hutchings, Sheila Drescher, F. B. McGovern and F. A. Coombs. -p. 681.

Benzene and Toluene Poisoning in Air Force Workshops.-Hutchings and her associates during 1944 undertook investigation of the effects of contact with aromatic naphthas on persons working in air force workshops. This large scale investigation was precipitated by the death of an airman from agranulocytosis and thrombocytopenia. The patient had been employed for two months, for one and a half hours per day, cleaning engine parts with kerosene and gasoline after the parts had been removed from a cleaning fluid of high benzene content; zinc chromate spraying was also carried on in the hangar, and the fumes were rather heavy during spraying. The postmortem examination revealed aplasia of the leukocyte and platelet elements; the red cells appeared to be affected to a lesser degree. From this and the patient's history of contact with benzene, it was concluded that the condition was due to *benzene poisoning* and that other personnel in contact with the agents should be investigated. An analysis of the fluids containing aromatic hydrocarbons included an engine cleaning fluid, various paints and thinners, and a rubber solution. The aromatic hydrocarbon content varied from 16 to 56 per cent. An estimation of the aromatic hydrocarbon content of the atmosphere showed variations between 0 and 1,400 parts per million The higher concentration existed only for short periods, but for the major portion of the time the concentrations were 10 to 35 parts per million. On the basis of their observations, the authors conclude that there is no need for routine blood examinations of men working in engine-cleaning and painting shops, provided that exposure is minimized. The authors outline the steps taken to provide good working conditions. New processes involving the use of different solvents are constantly introduced, and there is an urgent need for close cooperation between the technical services and the medical services, in order that adequate precautionary measures be taken.

Arch. del Inst. de Cardiol. de México, Mexico, D. F.

17: 761-870 (Dec. 31) 1947. Partial Index

•Study of 1,160 Cases of Rheumatic Valvular Endocarditis. C. Cortés and H. Villarreal. -p. 775.

Rheumatic Valvular Endocarditis.—Clinical records of 1,160 patients with rheumatic valvular endocarditis were studied in the National Cardiologic Institute of Mexico. Records of 147 necropsies in the same institution on bodies of patients who died with the disease were also studied. In the group of 1,160 patients there were 737 females and 423 males. Race was not a predisposing factor. A history of rheumatic fever was recorded in 656 patients and of chorea in 152 patients. Rheumatic heart disease without history of rheumatic fever was recorded in 430 patients. In the majority of cases the first attack of rheumatic fever was recorded between the ages of 11 and 20 years and the appearance of chorea between the ages of 6 and 10 years. Joint pain was the predominant symptom in most cases. The clinical diagnosis of valvular involvement was mitral in 1,122 cases, aortic in 209 and tricuspid in 20. Cardiac failure occurred in 512 patients. It appeared most frequently in patients between the ages of 20 and 40 years, especially in a variable period from three to ten years after the first attack. Disturbances of cardiac rhythm were encountered in 203 patients and of conduction in 69 patients. Fibrillation coexisted with mitral stenosis in 189 patients. Rheumatic heart disease coexisted with congenital disease in 6 cases, with syphilitic heart disease in 102 cases, with bacterial endocarditis in 18 cases and with hypertensive heart disease in 42 cases. Clinical diagnosis of the following complications was made: pericarditis in 16; pleuritis, 11; pulmonary infarct, 14; peripheral embolism, 41, and renal involvement, 26. The highest death rate occurred in patients between 11 and 20 years of age. Mitral stenosis and mitral disease were encountered in the majority of necropsies which revealed these complications and also in the majority of necropsies on the bodies of 127 patients over 44 years of age. Valvular syphilitic lesions were frequently encountered in the patients over 44 years of age.

Archivos de Pediatria del Uruguay, Montevideo

18: 553-594 (Nov.) 1947. Partial Index

•Penicillin in Gonorrhea in Children: Ambulatory Treatment by Injections. A. Wiederhold and A. Méndez. --p. 576.

Gonorrhea in Children.—Twenty-five children between the ages of 8 months and 12 years with gonorrhea were given penicillin therapy by mouth for six months followed by clinical and bacteriologic cure. The dose of the drug varied between 300,000 and 600,000 units. Penicillin by the mouth is rapidly eliminated in the urine, in sufficient concentration to kill gonococci. Treatment is simple, easy to administer and reliable. Patients have been observed for more than one year after recovery. None had a recurrence. Another group of 26 children between the ages of 2 and 12 years, also with gonorrhea, had intramuscular injections of penicillin in doses which varied between 100,000 and 250,000 units. Clinical and bacteriologic cure was obtained in 21. The purulent discharge and the presence of gonococci in the microscopic preparations of the secretion were maintained in the other 5. Higher doses of penicillin by the intramuscular route failed to cure the disease.

Gynaecologia, Basel

124:257-320 (Nov.) 1947. Partial Index

Sensory and Motor Innervation of Uterus. E. Held.—p. 257.
Simple and Successful Method of Formation of Artificial Vagina. F. Kovacs.—p. 290.
•Nutrition of Pregnant Woman in Relation to Malformations of Newborn. S. van Creveld.—p. 299.

Nutrition of Pregnant Women and Malformations in the Newborn.—Van Creveld reviews experimental investigations carried out in recent years which demonstrated the great importance of the diet during pregnancy in connection with the occurrence of deformities in the progeny. A relationship between an unsuitable diet in pregnant women and the occurrence of congenital deformities in the infants must be considered. He cites the case of a baby whose weight at birth was 2,600 Gm. and who had a partial cleft palate, together with micrognathia and partial syntarsalia of the second and third toe on both feet. The families of the father and mother were free from malformations, and parents as well as an older child were normal. During the pregnancy the maternal nutrition had been deficient in protein with hardly any fruit and little butter and fat . Observations on a group of 216 stillborn babies and infants who died within a few days after birth are suggestive. The majority of infants with evident congenital malformations and all premature babies were born of mothers whose nutrition during pregnancy had been extremely inadequate. In comparison, 91 per cent of the mothers whose babies were well at birth had had either a good or a fairly good diet during pregnancy. It has been demonstrated that if the mother contracts certain virus diseases, such as rubella, during the early months of gestation fetal deformities are likely to result. The author believes that the damaging effects of poor nutrition are exerted on the fetus chiefly during the latter part of gestation.

Journal d' Urologie, Paris

53:401-528 (Nos. 10 & 11) 1946-1947

•Amino Tumors of Bladder (Called Aniline Tumors): Seventeen Cases Observed in France. J. L. Billiard-Duchesne -p. 401.
Medicosurgical Treatment of Cancer of Prostate: Subcapsular Orchidectomy and Hormone Therapy. A. Cassuto. -p. 423.
Rupture of Corpus Cavernosum (Improperly Designated as Rupture of Penis).. A. Puigvert and J. Macias. -p. 431.

Amino or Aniline Tumors of Bladder.—Billiard-Duchesne states that physicians in industrial practice for years have observed the frequent occurrence of hematuria among employees of plants where dyestuffs are produced. Tumors of the bladder, which are often found, are now recognized as of occupational origin and are designated as aniline tumors. "Aniline tumor of the bladder" is not quite correct, since aniline itself does not produce these tumors. Only certain compounds of the aromatic amines are regarded today as carcinogenic, namely, benzidine, alpha-naphthylamine, beta-naphthylamine, 4'-amino-2,3' azotoluène and 2-acetylaminofluorene. Data on the 17 cases under consideration reveal that ages of the patients vary between 39 and 74 years, the average being 53 years. Since this is the age at which tumors develop spontaneously, age may play a secondary role. In only 2 to 5 per cent of those with prolonged exposure do tumors develop; this suggests that some personal predisposing factor may occur. Single as well as multiple tumors occur; they may appear in any part of the bladder but especially in the lower half. Of 7 histologically examined tumors, 6 were cancerous and 1 was noncancerous. Differential diagnosis of an occupational and a spontaneous tumor must be based chiefly on a history of exposure and the occurence of such tumors in similarly exposed workers. Preventive measures suggested by the author include avoidance of more than five years of occupational exposure to substances like benzidine and alpha-naphthylamines and beta-naphthylamines; thorough preemployment examination and inquiry with regard to earlier employment in plants producing dyestuffs; the use of closed processes wherever possible; good ventilation; frequent washing of hands by the workers and a daily shower; periodic examination of blood and urine, and systematic cystoscopic examination of workers who have been exposed for five years.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

91:3585-3664 (Dec. 13) 1947. Partial Index

Carcinoma of Corpus Uteri. M. A. van Bouwdijk Bastiaanse. -p. 3588.
Infarct of Uterus. A. J. M. Holmer. -p. 3590.
•Complications After Salpingography. B. S. ten Berge-p 3594.
Polymorphism of Erythroblastosis Fetalis. G.J. Kloosterman. -p. 3610.
Importance of Rupture of Membranes at Onset of Labor Pains. E. Tonkes. -p. 3616.
Reinfusion of Own Blood in Abdominal Hemorrhages, Particularly in Extrauterine Pregnancy. P. J. Hoedemaker. -p. 3619.
Stomach Cramps in Impending Eclampsia. H. Heyster. -p. 3622.

Complications After Salpingography.—Ten Berge believes that gynecologists and radiologists give too little attention to the dangers of salpingography. Histories of 4 patients are presented in whom serious complications resulted from salpingography, with one death. The author recommends pertubation in place of salpingography. Danger of air embolism in pertubation is obviated if carbon dioxide is used instead of air. Although pertubation involves less danger than does salpingography, it too may cause a reaction in an infected focus, as illustrated by the author's fifth case. However, the reaction takes a milder course than does that elicited by salpingography.

Praxis, Bern

37:1-20 (Jan. 8) 1948

•Refrigeration in Treatment of Arterial Obliterations of the Extremities. G. Bickel, and J. Fabre. -p. 1.
Problems of Fight Against Cancer. A. Zuppinger. -p. 6.
Some Actual Problems of Physiotherapy, Hydrology and Medical Climatology. K. M. Walthard. -p. 10.

Refrigeration Treatment.—Bickel and Fabre treated 4 patients, 3 women between the ages of 72 and 80 and 1 man aged 80, with gangrene of the lower extremities from obliteration of the arteries, by refrigeration. Amputation was postponed because of severe cardiopathy, advanced cachexia or refusal of surgery. The extremities involved were covered with a stocking of fine wool and then wrapped with ice bags up to 10 cm. above the ischemic zone. The ice was renewed every four hours. Refrigeration was discontinued every day for three hours. The extremity treated in this manner is cooled but not frozen. The nutritive requirements of the cells are reduced by a maximum, the formation of toxins responsible for the occurrence of shock is diminished, the exudative processes are limited, proliferation of pathogenic microbes is inhibited and a pronounced anesthetic effect is produced. Pain subsided within two hours after the initiation of the treatment. There was pronounced improvement in the local condition; in 1 case the ischemic zone was reduced by 6 cm.; in another case mummification of the previously moist and septic gangrene occurred and edema and suppuration subsided. The general condition improved rapidly, temperature was restored to normal and appetite increased. Amputation could be performed after two weeks of refrigeration treatment.

Presse Medicale, Paris

56:1-12 (Jan. 3) 1948

Metabolism of Lipids in Icterohemorrhagic Spirochetosis. P. Nicaud. -p. 1.
Cervicoabdominal Tunnelization (Subcutaneous Anastomosis) in Carcinoma of Esophagus. C. Olivier. -p. 2.
•Mortality From Diphtheria in Vaccinated and Nonvaccinated Persons. M. Blanco-Otero. -p. 3.
Technic of Intratibial Injection in Suckling Infants. R. Couder. -p. 4.

Mortality From Diphtheria.—According to Blanco Otero, vaccination with diphtheria antitoxin was initiated in Spain in 1940 and was practiced on a large scale. It became compulsory in 1943. With the first year of vaccination the mortality rate from diphtheria decreased by 50 per cent; the following year it decreased by 75 per cent. Within three years the mortality in the province of Soria dropped from 40 per hundred thousand inhabitants to 3; in the province of Segovia the mortality rate dropped from 29 before the prophylactic campaign to zero. A survey of the mortality in twenty-nine provinces revealed that of 702 persons who died from diphtheria, 659 had not received any vaccine, while 43 had been given a total or partial dose of vaccine. There was only 1 case of diphtheria and no fatality among 2,000 children aged less than 3 years who were vaccinated by the author in the district of Congreso (Madrid), and this during an epidemic and in children who lived under poor hygienic conditions. The mortality continued to decrease up to 1946, when it was one-fifteenth that in 1939, decreasing from 15.7 in 1939 to 0.9 in 1946.

Revue Médicale de Liege

2:629-652 (Dec. 15) 1947

•Clinical Trial with Di-Insulin. L. Brull and others. -p. 631.
Facts and Considerations with Regard to Diagnosis of Hypovitaminosis C. G. Barac. -p. 640.

Clinical Trial of Di-Insulin.—Brull and his co-workers treated 42 patients between the ages of 22 and 77 who had diabetes mellitus with di-insulin. 'Di-insulin,' a Danish preparation, is a mixture of equal amounts of ordinary insulin and of Hallas-Møller's "iso-insulin" (phenylureidoinsulin); the two insulins are miscible without affecting each other; i. e., the protracted action of the "iso-insulin" does not protract the action of the ordinary insulin. A wide W form of the twenty-four hour blood sugar curve is obtained, with two hypoglycemic notches, the hypoglycemic maximum being reached seven to eight hours after the injection. Results demonstrated that "di-insulin" may be used with advantage in all forms of diabetes mellitus by giving two injections of 30 units, 60 units daily, to patients with moderately severe or severe diabetes and by one injection of 30 units daily in mild diabetes. Doses of 50 units administered in one injection were well tolerated and did not cause hypoglycemia. As compared to ordinary insulin or to protamine zinc insulin, "di-insulin" has the following advantages: reduction of the total dose administered, reduction in number of injections, better control of the glycemia and particularly of the glycosuria. Patients with severe diabetes mellitus requiring massive doses of ordinary insulin or of insulin with protracted action are benefited by changing to "di-insulin."

Book Notices

Afecciones vasculares quirurgicas del encefalo. Por el Dr. Alfonso Asenjo F.R.S., F.A.C.S., director del Instituto central de neurocirugia, Chile, y el Dr. Enrique Uiberall, Consultor neurologo de la Clinica médica del Hospital San Borja y de la Sección B de medicina del Hospital del Salvador de Santiago, Chile. Paper. Pp. 308, with illustrations. Central de Publicaciones, Casilla 98, Santiago, Chile, 1945.

This monograph is based on a review of the literature and 32 cases studied by the authors, some of which were observed in Europe. The iconography, however, is new. The book is well illustrated but some of the roentgen photographs have been too much reduced so that the lesion is difficult to see. The authors use their own classification of these lesions, distinguishing the angiomatoses from the tumors. The congenital malformations are divided into (*a*) cavernomas, (*b*) telangiectases, (*c*) Sturge-Weber-Dimitri disease, (*d*) angiomas, venous and arterial and (*e*) arteriovenous aneurysms. The acquired angioses are traumatic arteriovenous fistulas and sacciform aneurysms. The tumors discussed are the hemangioblastomas of Lindau, angiogliomas and angioblastic meningiomas. The discussions of symptomatology, pathology, diagnosis and treatment follow classic lines, except that the authors believe pure arterial angiomas to be very rare. They use arteriography in the diagnosis, and the procedures outlined for treatment are reasonable and conservative. This monograph is an interesting and reliable guide for Spanish-speaking physicians.

Do You Have Body Control? Edited by Mrs. Helen J. Campbell Prepared for Punahou School Girls Physical Education Department, Honolulu, T. H. Exercises Designed by Miss Ruth Aust. Paper. Price, 50 cents. Chart; no pagination, with illustrations by Mrs. Bertha Lowrie, Miss Ruth Aust, 358 Young Hotel Building, Honolulu 9, T. H., 1945.

This pamphlet offers suggestions and describes exercise designed to bring about "body control," which is defined as the efficient use of the body in any movement. The brochure can be unfolded to form a large wall chart portraying a series of twelve exercises in black and white. Muscles coming into greatest use in each of the stunts are differentiated in the illustrations. Directions accompanying the exercises are clear and concise, and the illustrations are attractive. Some of the exercises are relatively strenuous and would require adaptation for persons long out of training or who have not practiced vigorous exercises regularly. Among the maxims found on the reverse side of the chart are suggestions relating to choice of exercises, learning to relax, improving posture and the value of physical recreation. In the school situation with adequate medical and educational supervision these charts may have real value. Indiscriminate use by the layman might on the other hand involve certain hazards, since directions include the prescription of local exercises for specific conditions. Precautions need to be set up by which all persons undertaking such an exercise routine will be ascertained through medical examination to be organically sound. Additional emphasis on the factors of suitable work, adequate nutrition, rest, relaxation, the use of preventive and therapeutic medical services and the avoidance of excesses might well be given.

The Twentieth Century Fund, Annual Report 1946. Paper. Pp. 47. The Twentieth Century Fund, 330 W. 42d St., New York 18, 1947.

The Twentieth Century Fund produces each year a relatively few publications. Recently they published the survey volume, "America's Needs and Resources," and the "Report" of the Fund's Foreign Economic Committee. The report indicates that the Fund spends half its current income on research—that is to say, on the execution of research projects through to publication—and 40 per cent on dissemination of information. Ten per cent of its income goes for overhead. The work in developing methods of public information may become the most significant contribution of the fund as a whole. Experiments have been made with motion picture and radio presentation of the results of the fund's research. Cooperation has been fostered with the chamber of commerce, the Y. M. C. A., the federal council of churches and the advertising council.

Pharmaco-Therapeutic Notebook. By H. W. Tomski. With a foreword by Hugh A. Dunlop, M.D., M.Sc., F.R.C.P. Cloth. Price, $4.50. Pp. 280. William Wood & Co., Mt. Royal & Guilford Aves., Baltimore 2, 1947.

This book was prepared to furnish pharmacists "essential notes on the various aspects of pharmaceutical practice." Designed for the British pharmacist, this book fails to carry out its purpose and is even less suitable for American pharmacists. The book presents short descriptive statements regarding a number of drugs arranged in groups according to the predominating pharmacologic action. However, the statements offer little or no pharmacologic information and deal chiefly with the clinical use of the agents. The selection of agents to be discussed is often unfortunate, and many of the recommendations are uncritical. For instance, among the recommended antimalarials are found Fowler's solution with iron and quinine (Baccelli's mixture) and sodium cacodylate. Mercury preparations are recommended for syphilis. A weird mixture of lithium and sodium hippurates is recommended for use in conjunction with various nitrites as a "hypotensive." The use of Latin titles cannot be criticized, since their use is customary in Great Britain, but many of the names applied to drugs common in this country will be confusing to the American pharmacist.

Differentialdiagnose der Lungenröntgenbilder: Besondere Berucksichtigung derjenigen Erkrankungen, die mit der Lungentuberkulose verwechselt werden können. Von Dr. Med. Rudolf Zeerleder. Mit einem Vorwort von Pd. Dr. Med. J. Morin und Dr. Med. H. Stöcklin. Second edition. Cloth. Price, 28 Swiss francs. Pp. 296, with 93 Illustrations. Hans Huber, Marktgasse 9, Bern 16, 1947.

This well prepared monograph considers most of the lesions that are seen by the roentgen examination. The author has arranged his material in a rather interesting form, considering lesions seen in the lung and mediastinum. The author discusses the diagnostic criteria clinically and roentgenologically and considers the conditions from which the various lesions should be differentiated. The book contains two hundred and ninety-six pages of text, reference and index, and there are ninety-three illustrations with drawings where it was necessary to emphasize shadows seen in the roentgenograms. The form of the book is not new, as a number of other authors have attacked the same problem in a similar way. Nevertheless this book is an addition to the roentgenologic literature and should bring help to those who can read German. The publishers have furnished a satisfactory paper, the print is readable and the illustrations are excellent. However, it should be stated that the illustrations are positive instead of negative.

Fracturas del extremo inferior del radio. Por el Dr. José A. H. Bulfaro. Tesis de doctorado, Universidad nacional de Buenos Aires, Facultad de ciencias médicas. Paper. Pp. 243, with 144 illustrations. Buenos Aires, 1946.

This is a Ph.D. thesis covering a circumscribed field, but the subject is handled thoroughly and scientifically. The monograph considers both para-articular and juxta-articular fractures of the radius as well as associated lesions. They are discussed from all angles, etiology, symptomatology, diagnosis and treatment, and this is prefaced by a short but entirely adequate review of the anatomy and kinesiology related to the subject, not omitting the radiologic aspect for which some valuable diagnostic hints are offered. The roentgenograms are sharp and clear, and their reading is considerably assisted by sketches placed beside them. The book is well written and clear and is amply documented by case reports. The classification is practical, the treatment simple and not unnecessarily complicated. The author's experience is well evidenced by many cases. Some new technical items are mentioned, such as the fixation clamp used for traction and mechanical devices for traction and spreading of the fingers with a new articulative factor for the thumb, which are simple and rather practical. The book is well worth reading and is a definite contribution to this subject.

The Selected Writings of Benjamin Rush. Edited by Dagobert D. Runes. Price $5. 433 Pages. The Philosophical Library, 15 East 40th Street, New York, 1947.

Mr. Runes deserves credit for assembling the "cream" of Rush's writings. More ought to be said and written about this truly great American, for there are many patriotic Americans who do not know even that he was a signer with Franklin of the Declaration of Independence!

Rush was born the day before Christmas (Dec. 24, 1745) on his father's farm just north of Philadelphia and was fortunate in having a highly educated and inspiring uncle, the Rev. Samuel Finley, who was headmaster in the academy and later took his nephew in as a student there. The boy must have been brilliant, for he was graduated from Princeton before the age of 15 and then spent six years studying under Dr. Redman as preceptor, as was the custom in those days, after which he went to Edinburgh and received his M.D. in 1768, aged 23. Then came a trip across the Channel to France, but he seems not to have cared much for the medical science he found there. He returned to Philadelphia, took an instructorship in chemistry in the College of Philadelphia, the first medical school in America, and eventually received an appointment as professor of the institutes and practices of medicine when the College became a university in 1791. Rush mingled with men in all stations of life and acquired much information, which he reduced to facts in the crucible of his fine mind. His interests and energies covered an amazing field and would be noteworthy even were he living today. Some of the titles to his papers have to do with slave keeping, to which he was opposed, a plan to make the United States a universal peacemaker, on helping the Africans, the defects of the confederation (not all the signers of the Declaration thought it sacrosanct), securities for liberty, capital punishment (to which he was opposed) and the essentials of good government. He had thought widely and deeply on the education which is best suited to a republican form of government and conceived a plan for a federal university. By nature Rush was sanely religious and recommended the Bible as a sort of textbook in the schools of his day. Natural and medical science were to him so closely allied that he lectured on animal life as a basis for the study of human physiology. He wrote on the different species of mania and phobia and on the "progress of medicine" (1801). Physicians have vices and virtues, which he carefully catalogs and then concludes that the virtues exceed the vices by far in the daily balance. There is a lecture delivered to medical students on the "duties of physicians," which, of course, were no different then than now. Among the titles listed in this book are an inquiry into the ways of the American Indian and his "medicine," concerning the climate of Pennsylvania, an account of bilious fever, the cause and cure of cholera infantum, common salt as a cure for hemoptysis, thoughts on "pulmonary consumption," arsenic in the cure of external cancers, on tetanus, medicine in the Revolutionary war, a new method for inoculating against smallpox, the noncontagiousness of yellow fever, the influence of alcohol and tobacco on human health and morals, the sugar maple tree in the United States and medical inquiries and observations on diseases of the mind.

Orthopedic Surgery for Nurses Including Nursing Care. By Philip Lewin, M.D., F.A.C.S., Professor of Bone and Joint Surgery, Northwestern University Medical School, Chicago. Fourth edition. Cloth. Price, $3.75. Pp. 563, with 255 illustrations. W. B. Saunders Co., West Washington Square, Philadelphia 5, 1947.

In this edition there have been certain important revisions. Information on poliomyelitis is brought up to date, and the section on preventive and postoperative measures is added. There is also an addition to some of the technical part such as strapping. The book should be judged from the point of view of furnishing information on orthopedics for nurses rather than as a book on strictly nursing technic. In this respect the book is admirably suited for its purpose. The information is thorough and detailed enough to be of real practical use without going too much into theoretic considerations. The description of operations and their purposes is clear, concise and adequate for the instruction of nurses. This book is a leader in its line and should be a valuable and indispensable addition to any library for nurses.

Precis de dermatologie. Par J. Darier, A. Civatte et A. Tzanck. Fifth edition by A. Civatte. Cloth. Price, 1700 francs. Pp. 1152, with 269 illustrations. Masson & Cie, 120 Boulevard Saint-Germain, Paris 6e, 1947.

A. Civatte has followed closely the plan of the previous editions by Darier and has changed the clinical descriptions in only slight degree, although he has discussed the more recent developments in dermatology with respect to etiology, pathogenesis and physiology. The present textbook retains the usual division of previous editions into two main categories, morphologic and nosologic, often requiring the reader to consult both sections. The clinical descriptions, however, remain outstanding in their clear and concise presentation of the essential data on the various dermatoses, and the book is unsurpassed as a reference in this respect. The author states that he has adhered to Darier's desire to limit the text to the scope of a manual, and consequently relatively few of the more recently described dermatoses are included in this new edition. The text can be recommended only for those who wish to find a maximum amount of information regarding the chief clinical characteristics of the well established dermatoses. An appendix thirty-eight pages long deals with treatment, covering general therapeutic considerations and offers a number of prescriptions to meet special indications.

The Rehabilitation of Speech: A Textbook of Diagnostic and Corrective Procedures Based upon a Critical Study of Speech Disorders. Book One: The Pathology of Speech and the Rationale of Its Rehabilitation. By Robert West, Professor of Speech Pathology, University of Wisconsin, Madison. Book Two: Remedial Principles. By Lou Kennedy, Associate Professor of Speech, Louisiana State University, and Anna Carr, Clinical Adviser in Speech, State Teachers College, Milwaukee. With a Chapter by Ollie L. Backus, Assistant Professor of Speech, University of Michigan, Ann Arbor. Book Three: Case Histories. Second edition. Cloth. Price, $5. Pp. 630, with 39 illustrations. Harper & Brothers, 49 E. 33rd St., New York 16, 1947.

The new edition of this well known textbook reports chiefly the personal experiences and opinions of the authors. The aspect of the medical specialist in the field of speech and voice pathology is given little consideration. As a result the medical reader will not accept some of the text or some of the illustrations, for instance, figure 21. That "whispering is harmless" in some disorders of the voice has been disproved by Dr. Hogewind. Lethargic encephalitis is not identical with sleeping sickness (p. 165). Some reliable methods to test the hearing of very young children have not been mentioned. Among the dyslalias the important clinical picture of multiple interdentality has been ignored. In the chapter on stuttering group treatment is recommended, although the group treatment of any other form of neurosis has not been accepted by most psychotherapists.

In general the book is a comprehensive study and offers to the reader useful information about the most important speech and voice disorders. Helpful therapeutic procedures are described, although there are a number of others which have been proved efficient and in some special cases superior. The fact that the book is a compound work accounts for the repetition of some of the material from chapter to chapter. The glossary containing some four hundred items is an excellent feature for the reader who needs easily to find terms briefly described.

The Yearbook of Psychoanalysis. Volume 2. Managing editor: Sandor Lorand, M.D. Fabrikoid. Price, $7.50. Pp. 280. International Universities Press, 227 W. 13th St., New York 11, 1946.

This is a collection of fourteen articles, mostly from well known psychoanalysts. There is no introduction to explain this special selection. It begins with a methodical article by Hartman and Kris defending the conservative point of view in this field which only recently has begun to emancipate itself from the domination of traditional views and practices. Fenichel in an article on psychosomatic phenomena essentially accepts Alexander's distinction between conversion symptoms which have a symbolic meaning and vegetative responses to emotions often called "organ neuroses." A lucid article of French on ego analysis contributes greatly to the value of this volume. Four articles by English authors (Jones, Flugel and Glover) are included. The volume contains the translated article of Freud: "Dostoievsky and Parricide." This is a penetrating analysis of "The Brothers Karamazov" which, like Hamlet and Oedipus Rex, is an intuitive elaboration of the Oedipus complex.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

RHEUMATIC HEART: TROPICAL CLIMATE

To the Editor:—Because of the difference of opinion existing in the literature and among pediatricians and cardiologists regarding the advisability of moving a child 8 years of age with inactive minimal rheumatic mitral insufficiency to a tropical or semitropical climate, I would appreciate an authoritative opinion. If affirmative, please send information regarding the most suitable locations, preferably but not necessarily in the United States or its possessions.

Ralph C. Greene, M.D., Memphis, Tenn.

ANSWER.—As indicated in the question, scientific data are not available on which one may base an answer acceptable to all observers. There are many features to be considered, some of which may be briefly mentioned:

1. There are known areas of high and low incidence of rheumatic fever in the United States. This is better recognized now as a result of World War II experience with rheumatic fever. The data assembled by Hedley, the Metropolitan Life Insurance Company and the war experience are in close agreement. However, rheumatic fever may occur in any part of the United States, and all surveys conducted by experienced observers indicate that there may be more rheumatic fever and/or rheumatic heart disease in low incidence areas than was previously supposed.

2. Claims of observers that specific areas offer particular advantages over other locations have not yet been substantiated by satisfactory scientific data. Once rheumatic fever is active, there exists no proof that any climate alters the severity or duration of the disease or the outcome in the given instance.

3. Exposure to epidemic factors (group A, beta hemolytic streptococcus infections) influencing the natural history of rheumatic fever vary considerably in various parts of the United States. However, rapid transportation may alter this and make it necessary for rather complete isolation even in low streptococcus infection areas. This would mean a rural life and probably poor medical supervision. Further, the possible effect on immunity from long residence in such an area is unknown. There is a strong probability that such a residence must be permanent and continuous not only for the patient but for the patient's immediate personal contacts (family).

4. The usual environment (described by Paul as microclimate) of the person recovered from rheumatic fever or the possibility of greatly improving the environment without change in climate must be considered. Much can be done, in areas where rheumatic fever is common, to decrease exposure to hemolytic streptococcus infections.

5. Experienced observers in areas where rheumatic fever is common report that two thirds of those with rheumatic fever do well although remaining in the area where the disease begins.

6. Sulfonamide prophylaxis (and perhaps eventually penicillin prophylaxis) under careful medical supervision may greatly improve the foregoing results.

7. Psychologic and economic factors vary greatly and must be considered in each instance in which advice is to be given.

8. In the great majority of instances, transportation to another climate is impractical and cannot be considered as the solution to this many-sided problem.

INDELIBLE PENCILS

To the Editor:--A woman got a fragment (about 1 by 1 by 2 mm. in size) from an indelible pencil in her left cul-de-sac (eye). After twenty-four hours it was removed, leaving a small ulcer of the conjunctiva and a purple stain about 2 cm. in diameter. Aside from irrigations and anesthetic ointment, could any other treatment have been used? One week later vision was 25/20 and the stain had been completely absorbed.

Arthur M. Dougherty M.D., Dodge City, Kans.

ANSWER.--Indelible pencils are most commonly made of an aniline dye which is exceedingly corrosive, and wounds caused by them are, as a general rule, of a serious character. Unless the pencil lead with the stained tissue is promptly removed, the aniline dye sets up an aseptic necrosis of the tissues which results in chronic inflammation with encapsulation and cyst formation. When the orbit, the eye or any of its appendages are involved, immediate treatment must be instituted by removing the fragments of the staining substance and all surrounding necrotic tissue, as well. Postoperative irrigations of 5 to 10 per cent solution of tannin are considered useful, as they form an insoluble compound with the aniline dye. Sodium chloride, boric acid and bichloride of mercury are contraindicated. References to this subject may be found in the *American Journal of Ophthalmology* (25:72 and 123 [Jan.] 1942; 27:1048 [Sept.] 1944) and in the book edited by Conrad Berens, "The Eye and Its Diseases," Philadelphia, W. B. Saunders Company, 1936, p. 499.

BRONCHIECTASIS

To the Editor:. A patient has bronchiectasis diagnosed by iodized poppy seed oil 40 per cent ("lipiodol") and bronchoscopy in 1939. Cough and expectoration have been the only feature up to December 1947, when the patient began to run a low grade fever that at times reached 102 F. Since then fever and increased expectoration have persisted. Bronchoscopic examination performed in January 1948 revealed an active infection and large amount of secretion coming from the left lingular division and saccular appearance of mucosa extending down into the bronchi of the lower lobe. Secretion was obtained for culture and vaccine. Culture revealed no tubercle bacilli but did reveal Neisseria catarrhalis, pneumococci and Streptococcus viridans. The patient has had a five day course of penicillin and sulfadiazine, e.g., 15 grains (0.97 Gm.) every four hours sulfadiazine and 300,000 units penicillin in oil and wax once daily. This caused decrease in cough and expectoration and slight decrease in temperature. All gradually recurred after treatment was discontinued. Aerosol penicillin was then tried, 100,000 units four times a day for seven days, with the same results. The infection has been diagnosed as mantl pneumonia. What is mantl pneumonia? What course of treatment do you suggest? Will streptomycin be of value?

M. D., Pa.

ANSWER.—The term mantl pneumonia is unknown, nor does it appear in the medical dictionaries of Gould, Dorland or Stedman. Several possibilities to account for it may be mentioned: It may be an obscure eponym, it may be a misprint or it may be mantle pneumonia, which to some may mean peripneumonia. Peripneumonia implies inflammation of pulmonary tissue around areas of abscess, bronchiectasis or other lesions in the lung.

Before treatment is resumed it would be wise to determine, if possible, what is going on, whether the bronchiectatic process is spreading, whether abscess has formed or neoplasm is present. According to experience, a five day course of penicillin therapy may not be sufficient in certain cases of bronchiectasis. Treatment may have to be prolonged for weeks. Even then there is no guaranty of relief. Nothing can restore the destroyed or defective bronchial tissue. Antibiotic therapy merely controls infection temporarily. Any subsequent minor infection of the respiratory tract is apt to cause recurrence of symptoms. Penicillin need not be injected with peanut oil or beeswax; results just as satisfactory are being achieved by the injection of 100,000 units of penicillin in its usual diluent every twelve hours. According to the flora cultivated from the exudate, there is little reason to expect that streptomycin will be helpful. It may be tried empirically if thorough penicillin therapy fails.

If conditions are suitable, lobectomy might be considered. Treatment with vaccine of any kind is illogical.

HOME HEATING

To the Editor:—*Is it advisable to humidify homes in winter? If so, what is optimal humidity? In our locality, winter heating results in a sharp drop in the humidity of the home. I am particularly interested in its effect on the upper respiratory system. Frequently patients with respiratory problems are referred to dry hot climates like Arizona for relief. The Arizona climate is closely simulated by the hot dry air in our heated homes during the winter. Is it the contrasting effects of the hot dry atmosphere of the home and the relatively higher cold humidity out of doors that seems to render so many persons liable to frequent colds and flareup of latent sinus infections in the winter?*

H. C. Goldberg, M.D., Plainfield, N. J.

ANSWER.—Dry air in the home during winter in cold climates has two possible effects in relation to respiratory infection. It has been found that certain pathogenic agents of the respiratory tract, e.g., hemolytic streptococci and influenza virus survive much longer in dry environments than in moist ones. (Robertson, O. H., and others: A Study of the Nature and Control of Air-Borne Infection in Army Camps, *J.A.M.A.* 126:993, 1944; Loosli, C. G., Lemon, H. M.; Robertson, O. H., and Appel: Experimental Air-Borne Infection. I. Influence of Humidity on Survival of Virus in Air, *Proc. Soc. Exper. Biol. & Med.* 53:205, 1943) Disease-producing streptococci have been recovered from blankets four and one-half months after being contaminated by carriers of hemolytic streptococci, when such blankets were kept in a dry atmosphere. Thus in a household respiratory pathogens dispersed into the atmosphere accumulate on surfaces and in fabrics when the relative humidity is low. At medium relative humidities, on the other hand, the survival of both bacteria and viruses may be brief.

Concerning the effect of different degrees of relative humidity on the upper respiratory tract in relation to respiratory infection, surprisingly little information is available. A. W. Proetz (*J. Laryng. & Otol.* 49:557, 1934) has shown that drying of the nasal mucosa results in a break in the continuity of the mucus layer which not only makes possible direct contact of foreign material (e.g., infectious agents) with the cellular surface but interferes with the ciliary action which sweeps extraneous matter away from the nasal passages.

In making comparison of the hot dry air of a heated home in a northern winter climate with the hot dry atmosphere of Arizona one must take into account the important fact that one is an internal and the other an external as well as internal environmental condition. In the latter (Arizona) situation the doors and windows will be open, thus permitting free ventilation which reduces the environmental and aerial contamination with pathogens of the respiratory tract and in such climates the human reservoirs of these disease agents are much less frequent. It is possible that rapid changes of temperature and humidity such as one experiences in northern winter climates play a role in increasing susceptibility to infections of the respiratory tract, but except for the well known predisposing factor of actual chilling of the body surface under such conditions no certain information exists. However, it has been observed for a long time that sharp rises in the incidence of pneumonia tend to coincide with rapidly changing atmospheric states. (Robertson, O.H., and others: A study of the Nature and Control of Air-Borne Infection in Army Camps, *J.A.M.A.* 126:993, 1944; Loosli, C.G.; Lemon, H.M.; Robertson, O.H., and Appel, E.: Experimental Air-Borne Infection. I. Influence of Humidity on Survival of Virus in Air, *Proc. Soc. Exper. Biol. & Med.* 53:205, 1943)

BASAL METABOLIC RATE

To the Editor:—*Why is the basal metabolic rate decreased in subacute nephritis when there is no edema? What is the rationale of thyroid therapy in these cases? One of the popular methods of treatment is based on keeping the kidney at rest and keeping its metabolic activity to the minimum (e.g., "the rice diet"), and rest in bed is supposedly paramount. Would not thyroid therapy conflict with this view? The patient in question has a basal metabolic rate of minus 25 to minus 34 per cent, despite 4 to 5 grains (0.26 to 0.32 Gm.) of thyroid per day. Is there any explanation for resistance to thyroid in subacute nephritis?*

M.D., Montana.

ANSWER.—The basal metabolic rate is not necessarily decreased in subacute nephritis but may be lowered by rest in bed or inactivity and by undernutrition. A low basal metabolic rate may be normal for the particular individual apart from nephritis. If this is the case or if the hypometabolism is not associated with symptoms of hypothyroidism, there is no indication for thyroid therapy. Stimulation of general body metabolism by adequate doses of thyroid is certainly incompatible with the principle of rest for the kidney or any other organ. It is difficult to find a good reason for administering thyroid to patients with nephritis in the absence of true hypothyroidism, unless one wishes to treat hypercholesterolemia empirically.

The problem of resistance to thyroid medication is of general significance. It is well established that normal, or euthyroid, persons often show little response to 2 or 3 grains (0.13 or 0.19 Gm.) or even 5 or 6 grains (0.32 or 0.39 Gm.) of thyroid daily. On the other hand, the true hypothyroid or myxedematous patient is extremely sensitive to small doses, and each grain of thyroid above the daily requirement causes a proportionate rise in the basal metabolic rate and in serum precipitable iodine or thyroxin iodine, although the basal metabolic rate changes much more slowly than the serum iodine.

Many subjects with hypometabolism can tolerate several grains of thyroid daily without change in their basal metabolic rate. They also respond less to thyroxin intravenously. Their serum precipitable iodine may remain low for weeks and months during thyroid therapy. On cessation of treatment, the basal metabolic rate may fall rapidly, indicating suppression of activity of the thyroid gland by exogenous hormone. However, resistance to thyroid is relative only; on sufficient increase in dosage and duration of treatment typical effects will be obtained, including toxicity.

From the preceding facts it may be concluded that resistance to thyroid medication is probably a function of the ability of the normal thyroid to inactivate thyroid substance. At the same time, thyroid hormone production is depressed. In states of undernutrition, response of tissues to thyroid hormone may be reduced for as yet unknown reasons.

BOILING OF MILK

To the Editor:—I assume that my practice of giving a baby whole milk at the age of eight months is generally accepted. I advise the mothers to boil this milk, even though they use pasteurized milk, for three to five minutes, at least until the child is about 1½ years of age. The mothers come back and tell me that nobody else boils the milk, why should they?

Is it advisable to insist on boiling the milk for young children although the local supply of pasteurized milk is considered satisfactory from a bacteriologic standpoint?

M.D., Wisconsin.

ANSWER.—It is the general practice today to boil milk for infants under 9 months of age. After this time, it is not necessary to boil properly pasteurized milk, considered satisfactory from a bacteriologic point of view. During the prevalence of milk-borne epidemics in any community it is wiser to temporarily resume boiling the milk until the epidemic subsides.

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TRANSIENT CEREBRAL PARALYSIS IN HYPERTENSION AND IN CEREBRAL EMBOLISM

With Special Reference to the Pathogenesis of Chronic Hypertensive Encephalopathy

G. W. PICKERING, M.B.
London, England

A variety of cerebral attacks occur in hypertension. In cerebral hemorrhage, consciousness is lost suddenly and is not usually regained before death ensues; when recovery does occur a permanent disability often remains. In thrombosis of a cerebral artery with massive infarction of the brain, consciousness is also suddenly lost, and when it is regained a hemiplegia, a hemianopia or other lesion usually remains. While the gross pathology of such cerebral attacks has been apparent since the early days of postmortem examination of the brain, there are others in which the disturbances in life are of much shorter duration and in which the appearance of the brain after death is less noticeably altered. These attacks, which are the subject of this paper, were at one time included in the symptom complex of uremia. They were first clearly distinguished from true uremia by Volhard,[1] who termed them pseudouremia, and are now generally known as hypertensive encephalopathy (Oppenheimer and Fishberg[2]). Volhard recognized that these cerebral attacks are not all of one kind and that there are clear differences both clinically and pathologically between the attacks occurring in acute and in chronic hypertension. It is with the attacks occurring in chronic hypertension that I am chiefly concerned here.

HYPERTENSIVE ENCEPHALOPATHY IN ACUTE HYPERTENSION

In hypertension of recent origin such as acute nephritis or pregnancy "toxemia," or in a chronic hypertension with recent exacerbation, attacks occur in which severe headache is followed by vomiting, drowsiness, bradycardia, convulsions and coma. These attacks may be preceded or followed by focal symptoms and signs, and clear up without residual nervous phenomena. Volhard pointed out the similarity of the clinical picture to that found in acutely raised intracranial pressure. For this reason and because of the frequent presence of papilledema, he suggested that the attacks were due to acute edema of the brain, an explanation previously suggested by Traube and subsequently adopted by Zwangemeister and others.[3] Gorke and Töppich, Blackfan and Hamilton, Volhard[4] and others have described cases in which death occurred after attacks of this kind in which evidence of cerebral edema was found post mortem. Acute edema of the brain may therefore be provisionally accepted as the pathologic basis of such attacks. Some doubt still exists as to the cause of this edema. Traube regarded it as a passive consequence of diminished blood protein and raised arterial pressure. He supposed that both of these factors usually operated and that a sudden fall in blood protein or a sudden rise in arterial pressure might further increase the passage of fluid out of the cerebral vessels into the brain substance and precipitate a cerebral attack. At that time neither of Traube's two operative factors could be measured. No clear evidence has since been produced to show that plasma protein plays any part. Hypertension has been found invariable, and Volhard, Oppenheimer and Fishberg and McAlpine[5] among others have shown that a further rise in arterial pressure often immediately precedes the attacks. Traube's explanation implies that the cerebral arterioles are relatively feebly constricted by the agent raising the arterial pressure in hypertension, so that the cerebral capillary pressure is raised. The feeble contractility of the cerebral arterioles to constrictor agents supports the hypothesis; as does the relationship that exists between pressure of cerebrospinal fluid and diastolic arterial pressure in hypertension.[6]

The current view as to the origin of cerebral edema is, however, quite different, and was put forward by Volhard, who supposed the cerebral edema due to ischemia of the brain. He considered that the cerebral arterioles were not less but more constricted than those elsewhere, so that the cerebral blood flow became so small that the capillaries were damaged by anoxia, and so allowed abnormal amounts of fluid and protein to pass out into the cerebral substance. The chief evidence produced for this widely accepted hypothesis is that a rise in arterial pressure precedes the attacks; this fact is of no great value as evidence, for it had been envisaged as a possibility by Traube when he was formulating a precisely opposite hypothesis. In 3 cases which I have observed myself and reported briefly elsewhere, the protein in the cerebrospinal fluid was not significantly different in and out of the attacks. B[illegible]

From St. Mary's Hospital Medical School [illegible]

[1] (a) Volhard, F., and Fahr, K. T.: Die [illegible] Klinik Pathologie und Atlas, Berlin, Julius Sp[illegible] F., in Mohr, L., and Staehelin, R.: Handbuc[illegible] 2, Berlin; Julius Springer, vol. 6, pt. 1; (c) in Berglund, H., and Medes, G.: The Kidney in Health and Disease, Philadelphia, Lea & Febiger, 1935, p. 665.

[2] Oppenheimer, B. S., and Fishberg, A. M.: Hypertensive Encephalopathy, Arch. Int. Med. 41:264 (Feb.) 1928.

[3] B[illegible] sia, Ztschr. f. Geburtsh. u. Gynäk. 79:129, 1916.

[4] Gorke, H., and Töppich, G.: Mercurie Chlorid Nephrosis, Ztschr. f. klin. Med. 92:113, 1921. Blackfan, K. D., and Hamilton, B.: Uremia in Acute Glomerular Nephritis, Boston M. & S. J. 193:617, 1925. Volhard, F., in Berglund, H., and Medes, G.: The Kidney in Health and Disease, Philadelphia, Lea & Febiger, 1935.

[5] McAlpine, D.: Hypertensive Cerebral Attack, Quart. J. Med. 2:463, 1933.

[6] Pickering, G. W.: Cerebospinal Fluid Pressure in Arterial Hypertension, Clin. Sc. 1:397, 1934.

that the cerebral arterioles have never been found to constrict more strongly than arterioles elsewhere, to a constrictor agent; in fact, the reverse is true.

THE ENCEPHALOPATHY OF CHRONIC HYPERTENSION

Attacks similar to those just described may occur in chronic hypertension particularly if there has been a recent exacerbation, but the usual attack is quite different. To quote Volhard, "Next in frequency to headaches and vertigo there occur transitory amaurosis, hemianopia, aphasia, astereognosis, transitory monoplegia and hemiplegia and rarely epileptiform attacks." Clinically the most striking features of these attacks of sensory or motor paralysis are their brief duration, the tendency to complete resolution and the frequency with which consciousness is retained. Peabody[7] seems to have been the first to ascribe such transient attacks of paralysis to spasm of a cerebral artery, because in the case which he observed, of a man of 56 with some six transient attacks of right hemiparesis, neither a cerebral infarct nor complete occlusion of a cerebral artery was found post mortem, though the middle cerebral and other arteries were grossly atheromatous. According to this hypothesis, a cerebral artery suddenly contracts so fiercely that its lumen is almost or quite obliterated, the corresponding area of brain becomes ischemic and a corresponding localized sensory or motor paralysis ensues; after a shorter or longer interval the artery opens again, the previously ischemic brain recovers and the paralysis disappears. This hypothesis explains rather simply the clinical facts and caters to the popular demand for hypotheses involving the conception of vasospasm; hence it is almost universally accepted at the present day, certainly in the United States and Europe. The evidence for it is slight. Volhard[1a, b] argued that intermittent claudication, angina pectoris and dead fingers occurring in hypertensive disease gave evidence of similar transient and localized vascular spasm elsewhere; but it is now known that the first two are due not to spasmodic but to organic arterial occlusion and that dead fingers are not usually associated with hypertension and that they represent a peculiarity in the local response of digital arteries to cold. Osler[8] in supporting the hypothesis was influenced by 2 cases in which cerebral disturbances and dead fingers were associated; his first case in which digital gangrene, epileptiform attacks and bloody urine occurred together only in winter would now be recognized as an example of cold hemolysis; his second was an unusual and complicated case terminating in gangrene of an arm and death in coma, only to have been explained by a necropsy that was not obtained. The most important evidence for the hypothesis is obtained by examination of the brain after death. No local cerebral lesion was found by Peabody, and the small foci of cerebral degeneration found by Westphal[9] were held to be inadequate to account for symptoms in his cases. On the other hand, Davison and Brill[10] thought the small degenerative foci were the cause of symptoms in their 7 cases. The most extensive and most objective account of the cerebral lesions is probably that of Rosenberg,[11] who examined the brains carefully in 17 cases of malignant hypertension and 15 controls. In the cases of hypertension, massive cerebral hemorrhage was found in 4 cases and small and spotty hemorrhages with numerous infarcts of similar size in 5 cases. Single large infarcts occurred in 3 cases. He was impressed with the frequency of multiple miliary infarcts, which he found in 12 cases in basal ganglions, cortex, white matter, brain stem and cerebellum; they varied in size from 5 to 6 mm. across to minute softenings only seen with the aid of a microscope. These small lesions had been ascribed to vascular spasm by Westphal and Bär and by Spielmeyer[12] because no adjacent organic arterial lesion could be found. This was often Rosenberg's experience, but he found some infarcts adjoining thrombosed vessels. Rosenberg concluded that "in this study it was always possible to demonstrate regions of cerebral destruction where focal cerebral symptoms had been present during life, and in instances where the brain showed no destructive lesions the history revealed that episodic focal symptoms had not been present during life." He suggested from his anatomic studies that cerebral symptoms were of three kinds in malignant hypertension: (1) due to increased intracranial pressure (headache, vomiting, drowsiness), (2) due to multiple miliary cerebral lesions (a wide variety of transitory disturbances often without physical signs) and (3) due to large cerebral vascular accidents. Rosenberg's observations support the idea that attacks of transitory paralysis in hypertension are due to focal ischemia of the brain, but leave undecided the problem as to whether the ischemia is due to spasmodic or organic arterial obstruction, though in some cases the latter was clearly the cause.

Whether or not localized spasm of cerebral arteries occurs in the disease is not unimportant to the general conception of the mechanism of hypertension. It is extremely probable that raised arterial pressure is due to vasoconstriction, but the causal agent is not yet known. If the cerebral arteries in this disease do from time to time undergo vasoconstriction (*a*) so intense as to paralyze nervous activity in their distribution and (*b*) so localized that nutrition of the remainder of the brain is unimpaired, then it would follow from (*a*) that the agent has an intense constrictor action on the cerebral arteries and from (*b*) that the active substance can be released in significantly abnormal amounts at localized points within the cranial cavity. If the principle of the paucity of hypotheses is applied, the suggestion at once emerges that the agent causing hypertension is one produced within the cranial cavity. These implications of the hypothesis become all the more striking when it is added that in hypertension localized arterial constriction of similar degree is generally claimed in no other vascular territory except the eye. The implications need, however, be pressed no further, for it will be the function of this paper to show that the hypothesis is not only improbable but also unnecessary, and that it should therefore be discarded. That the hypothesis is improbable emerges from a consideration of the cerebral arteries and their behavior; that it is unnecessary is plain from the fact that precisely similar attacks mav occur when a cerebral artery is occluded by an embolus.

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[7] Peabody, G. L.: Relation Between Arterial Disease and Visceral Changes, Tr. Am. A. Physicians **6**: 154, 1891.

[8] Osler, W.: (*a*) Raynaud's Disease, Canad. M. A. J. 1:919, 1911; (*b*) The Cerebral Complications of Reynaud's Disease, Am. J. M. Sc. **112**: 522, 1895.

[9] Westphal, K.: Pathogenesis of Apoplexy: Clinical Investigations, Deutsches Arch. f. klin. Med **151**: 31, 1926.

[10] Davison, C., and Brill, N. Q.: Essential Hypertension and Chronic Hypertensive Encephalopathy, Ann. Int. Med. **12**: 1766, 1939.

[11] Rosenberg, E. F.: Brain in Malignant Hypertension, Arch. Int. Med. **65**: 545 (March) 1940.

[12] (*a*) Westphal, K., and Bar, R.: Pathogenesis of Apoplexy, Deutsches Arch. f. klin. Med. **151**: 1, 1926. (*b*) Spielmeyer, W.: Vasomotorisch trophische Veranderingen bei Zerebraler Arteriosklerose, Monatschr. f. Psychiat. u. Neurol. **68**: 605, 1928.

THE CEREBRAL ARTERIES AND THEIR BEHAVIOR

Anatomists have long stressed that among the arteries of the body, the cerebral arteries are peculiar in the relative thinness of their wall (fig. 1). Baker[13] has shown that the cerebral arterioles are also peculiar in that their media is chiefly composed of callagen, muscle being sparse and in places absent. The cerebral arteries do not look like arteries that would show intense variations in caliber in response to constrictor stimuli, nor in fact do they delay. Thus repeated investigation[14] failed to demonstrate cerebral vasoconstriction after stimulation of the cervical sympathetic fibers until Forbes and his colleagues[15] developed their technic of direct measurement of pial arteries through a closed window in the skull. Even so the constriction of the pial arteries is small and insignificant as compared with arteries of the skin (fig. 2). Again epinephrine directly applied to the cerebral arteries constricts them feebly, but when epinephrine is injected intravenously this action is more than overcome by the rise of arterial pressure, so that the pial artery actually increases in size. Bouckaert and Heymans[16] have shown that the cerebral vessels do not participate in the generalized vasoconstriction evoked by a fall of pressure in the carotid sinus. The clear picture of the cerebral arteries that emerges from both anatomic and physiologic investigations is thus of feebly contractile arteries reacting weakly or not at all to vasoconstrictor agents. Clearly the hypothesis of local spasm of a cerebral artery intense enough to produce paralysis of nervous function and ultimately necrosis of cerebral tissue is not one to be adopted if a reasonable alternative can be put forward. Such an alternative does arise from a comparison of attacks of transient paralysis occurring in hypertension with those occurring in embolism of the cerebral arteries.

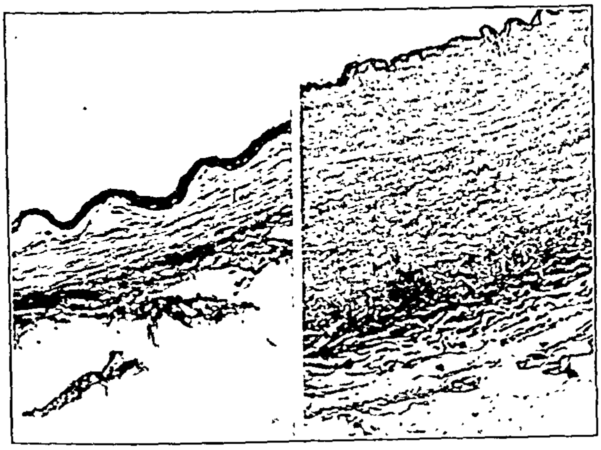

Fig. 1.—Transverse section (× approximately 84) through the wall of the radial artery and the middle cerebral artery of the same subject. This illustration was provided by Dr. Dohiach, British Postgraduate Medical School, London.

HYPERTENSIVE ENCEPHALOPATHY AND CEREBRAL EMBOLISM COMPARED

Hypertensive Encephalopathy.—Chronic hypertensive encephalopathy characterized by transient motor or sensory paralysis of cerebral origin is not very common. I have records of only 11 cases seen during the last 15 years, and these are summarized in table 1. Cases have, however, been described by Volhard, by Wagener, Keith and Kernohan, by McAlpine and others[17] and the clinical facts are well known. Typically when the patient is in good health and engaged in his usual daily occupations, paralysis of a limb or of half of the body, asphasia, sensory loss or blindness of an eye or of half of a field of vision abruptly supervenes. Consciousness is usually not lost, but the patient may be confused or excited. The condition may last a few minutes or a few hours and then gradually passes off, leaving the patient apprehensive or tired but without signs of any focal disturbance of the central nervous system. Such is the typical attack as it has been described. But while such attacks by their dramatic character focus the attention of the investigator, it is a mistake to think that there is an abrupt dividing line between these brief and evanescent paralyses and those which clear more slowly and which may leave residual symptoms and signs of a permanent lesion of the central nervous system. In fact, in my own experience, summarized in table 1, there is a continuous series from attacks in which paralysis is brief and totally reversible to those in which paralysis persists for months or years to leave some permanent residuum. By general consent the latter are regarded as due to cerebral arterial thrombosis; the contention here presented is that the former are also. The following report presents an example of a patient who experienced a paralysis of long and one of brief duration.

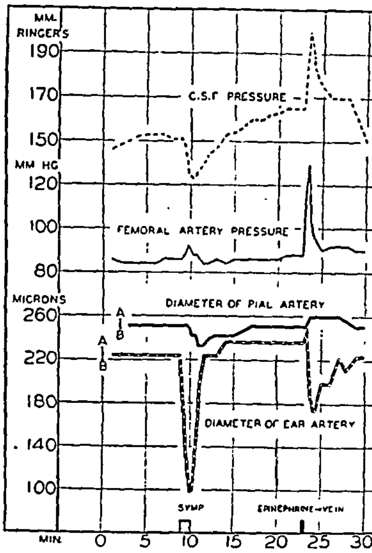

Fig. 2.—The lower two curves show the diameters of a pial artery and of an artery of the ear, measured in a monkey by direct observation. Stimulation of the cervical sympathetic constricted the pial artery by 7 per cent and the ear artery by 56 per cent. Intravenous administration of epinephrine dilated the pial artery by 4 per cent and constricted the ear artery by 26 per cent. (From Forbes, H. K.; Kinley, K. H., and Nason, G. I.: Arch. Neurol. and Psychiat. **30**: 957, 1933.)

Case 3.—J. C., an intelligent clerk of 41, was standing in a crowded underground train on Dec. 29, 1933, when his left arm and leg suddenly became weak. He did not lose consciousness or fall, but managed to stagger out of the train and walk 100 yards (91.4 meters) to a friend's office, whence he was taken home to bed. During his walk he tended to fall to the left. Since this attack he had noticed difficulty in articulation, in managing his dentures and in using his left arm and leg. These disabilities had slowly been recovering when he was first examined by me on Jan. 2, 1934. He showed the typical picture of severe essential hypertension (arterial pressure 220 systolic and 150 diastolic, normal urine and urea concentration to 2.5 per cent, and moderate retinal arteriosclerosis). He had slight but definite weakness of the left side of the face, the left arm and the left leg of the upper motor neuron type, deviation of the tongue to the right, exaggerated tendon jerks in the left upper and lower limbs, and a left extensor plantar response. Sensation and fields of vision were normal. By January 26, only weakness of the left side of the face remained. Ten months later, while at work he suddenly felt dazed and a severe headache developed lasting five minutes only. At the same time his left hand suddenly felt numb and weak, recovering in about five minutes. But for the next half-hour he kept hitting the wrong keys on the typewriter. For the rest of the day he was excited and walked about as if in a dream. He was discharged the next day for his behavior. Three years later, on Sept. 6, 1937, he woke with severe bilateral frontal headache. When he reached his office he found himself unable to speak intelligently, though he knew what he wanted to say and understood what was said to him. He was sent home, and said that his speech had recovered an hour from the onset. Seen by me later that afternoon he showed some slight residual difficulty in speaking; he was slow and hesitant but presented no other signs in the central nervous system. In December 1937, cardiac asthma, Cheyne-Stokes respiration and early albuminuric retinitis developed. He died of acute pulmonary edema, having maintained a severe hypertension throughout. Necropsy showed changes characteristic of malignant hypertension. The arteries of the circle of Willis showed moderately severe atheroma. A lesion of the cerebral substance characterized by pigmentation and irregular linear and punctate pits was found extending inferiorly from the junction of the middle and posterior thirds of the putamen into the internal capsule superiorly, and having a maximum area of 9 by 7 mm. No other focal cerebral lesion was found.

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[13] Baker, A. B.: Structure of Small Cerebral Arteries and Their Changes with Age, Am. J. Path. **13**: 453, 1937.

[14] (*a*) Hill, L., and MacLeod, J. J. R.: Influence of Compressed Air and Oxygen on the Blood, J. Physiol. **26**: 394, 1900. (*b*) Roy, C. S., and Sherrington, C. S.: Reaction of Blood-Supply to Brain, ibid. **11**: 85, 1890. (*c*) Florey, H. W.: Microscopical Observations on Circulation of Blood in Cerebral Cortex, Brain **48**: 23, 1925.

[15] (*a*) Forbes, H. S., and Wolff, H. G.: Cerebral Circulation, Arch. Neurol. & Psychiat. **19**: 1057 (June) 1928. (*b*) Forbes, H. S.; Finley, K. H., and Nason, G. I.: Cerebral Circulation; Action of Epinephrine on Pial Vessels; Action of Pituitary and Pitression on Pial Vessels; Vasomotor Response in Pia and in Skin, ibid. **30**: 957 (Nov.) 1933.

[16] Bouckaert, J. J., and Heymans, C.: Carotid Sinus Reflexes: Influence of Central Blood-Pressure and Blood Supply, J. Physiol. **79**: 49, 1933.

[17] Volhard.[3b] McAlpine.[5] Keith, N. M.; Wagener, H. P., and Kernohan, J. W.: Syndrome of Malignant Hypertension, Arch. Int. Med. **41**: 141, (Feb.) 1928.

Table 1.—*Transient Motor or Sensory Paralysis of Cerebral Origin in Essential Hypertension*

Case	Patient	Age	Sex	Blood Pressure	Number of Attacks	Nature	Duration	Loss of Consciousness
1	J. T.	36	M	230/144	1	Hemiparesis, right; aphasia	20 min.	No
2	M. L.	47	F	260/140 260/140	1 1	Aphasia; paresis, arms Aphasia	1 hr. 1 hr.	No No
3	J. C.	41 42 45	M	220/150 220/150 220/150	1 1 1	Hemiparesis, left Paresis, hand, left Aphasia	2 mo. 5 min. 1 hr.	No No No
4	K. I.	37	F	250/140	1	Paresis, face and arm, right	2 days	No
5	E. C.	58	F	240/120	1	Hemiparesis, left; aphasia	days	No
6	L. L.	52	F	260/130	1	Hemianesthesia, right	days	No
7	H. G.	53	M	190/138	1	Hemiparesis, left	days	No
8	R. G.	65	F	230	1	Aphasia; paresis, face, right	7 days	No
9	L. C.	63	F	220/115	1	Paresis, arm, left	7 wk.	No
10	S. H.	41	M	230/160	1	Aphasia; hemiparesis, right Hemianesthesia, right	2 wk. Persists	No
11	E. S.	56	F	254/140	1	Paresis, arm and face, right Leg, right, 7 days later	1 mo. Persists	No

The only other case which need be cited is the following, in which coronary thrombosis, proved at necropsy, was followed four years later by a spectacular attack of transient paralysis lasting twenty minutes and leaving no clinical sequelae; but a small cyst was found in the putamen at necropsy four months later.

Case 1.—J. T., then a 32 year old sergeant in the 8th Army, had a sudden attack of severe pain over the lower part of the sternum while at a Christmas party in North Africa in 1942. He had to lie down, and the pain passed off after twenty minutes. He felt easily tired subsequently. In August 1943, while he was on a march in Palestine, pain developed over the sternum which spread across his chest and down the left arm. The pain gradually reached a maximum at which it remained during the last hour of the march; he was short of breath and sweated profusely. At the end of the march he lay down, and the pain passed off in about fifteen minutes. Subsequently he often experienced sternal pain on exercise, relieved by rest, and he was discharged from the army in December 1943. He eventually obtained a clerical post, and apart from angina and occipital headache on waking remained in fair health until Dec. 20, 1946, when at 10 a. m. while sitting at his office desk he noticed that his lower lip on the right side was numb. He bit his lip to confirm this. Then the fingers of his right hand became numb, and he found that he could no longer write. He could neither form the letters nor put the words on paper in their correct order, though he knew what he wanted to say. He thought that there was no weakness of the right hand, but it was clumsy and movements were difficult. He went into the next office and found that he could not speak; he knew what he wanted to say but the words were jumbled and his colleagues accused him of being drunk. All these disturbances cleared up completely in about twenty minutes, and he was able to continue his work for the rest of the day. Shortly afterward his eyesight began to fail, and he came to the hospital. Examined on Feb. 3, 1947 (now aged 36) he showed gross hypertension (230 systolic and 144 diastolic) in the malignant phase (bilateral albuminuric retinitis), gross enlargement of the heart with gallop rhythm, normal urine and renal function and no abnormal signs in the nervous system. The patient died of acute pulmonary edema on April 7, 1947 after adrenalectomy. Post mortem, the heart weighed 400 Gm., the left ventricle being 2 cm. thick; an old infarct was found on the endocardial surface of the anterior wall of the left ventricle near the base and involving the contiguous part of the interventricular septum; the corresponding branch of the left coronary artery was thrombosed, the remaining coronary arteries showing only slight atheroma. The brain showed only slight atheroma of the basal vessels and of the left and right middle cerebral arteries traced as far as the insula. A yellowish cyst, 5 mm. by 5 mm. by 3 mm., was found in the left putamen in the same vertical plane as the mammillary bodies.

Of the 11 patients whose cases are summarized in table 1, L. L., R. G. and S. H. (cases 6, 8 and 10) died out of hospital from apoplexy three years, one year and three months respectively after the attacks named in the table. The brain was examined post mortem in only cases 1, 2 and 3. All 3 patients died of malignant hypertension with severe arteriolar lesions, particularly of the kidney. Cases 1 and 3, already described, each showed a cyst of the putamen clearly ischemic in origin, though no evidence as to the nature of the old arterial obstruction was obtained. In case 1 an old myocardial infarct due to arterial thrombosis was also found. Case 2 presented a large number of small yellowish brown cysts about 2 mm. in diameter scattered through the basal ganglions of both hemispheres and two similar areas in the left pons. These findings in general agree with the more numerous and detailed observations of Rosenberg in showing that focal ischemia has occurred in cases presenting transient paralytic attacks.

The cases here reported and those of others show clearly that in hypertension there is no sharp dividing line between paralyses of cerebral origin that are transient and those that clear more slowly leaving a residue, and that both kinds of attacks are associated with focal lesions of ischemic origin in the brain. It may reasonably be inferred further that the nature and duration of the attack will vary with the size and position of the ischemic lesions. A persistent disability is more likely to arise from large infarcts than from small, and from lesions leaving a final area of necrosis in tracts such as the internal capsule than from lesions involving the silent areas of the brain. Histologic evidence leaves the cause of these ischemic lesions uncertain; serial sections sometimes reveal thrombosis of an artery, sometimes not, and this is true whether the infarct is large or small. Two chief possibilities exist; the ischemia may be due to organic arterial obstruction, for example, by a thrombosis; or it may be due to spasm. The evidence provided by the occurrence of similar attacks in mitral stenosis and auricular fibrillation may now be considered.

Cerebral Embolism.—For many years I have been struck by the close similarity between the type of hypertensive cerebral attack just described and attacks occurring in patients with mitral stenosis and auricular fibrillation but without hypertension. The cases that have come under my notice are summarized in table 2 and are briefly as follows:

Case 12.—W. E., a laborer aged 56 suffering from auricular fibrillation without valvular disease and with normal blood pressure (150 systolic and 80 diastolic), was admitted in 1939 for attacks lasting one-half hour in which he become giddy and breathless (thought to be due to paroxysmal ventricular tachycardia). In June 1939, when straightening up after taking a plant out of a pot he suddenly noticed blindness in the left eye. He was able to stumble into the house and upstairs to bed, where after half an hour his sight recovered. He was giddy at the time but noticed no disturbance in arm or leg. Examined four months later, the retinal arteries were of equal size in the two eyes and no signs were observed in the central nervous system.

Case 13.—A. N., a schoolmaster aged 52, had noticed irregularity of the heart since 1941. In 1942 while returning from watching a boxing match he noticed that he was walking badly and went into a public house to get a whisky. He could not get the money out of his pocket because his left hand was useless, and he could not talk. He was recognized, and some men in the public house carried him home in a hand chair; he was perfectly conscious and remembers clearly seeing the people pass by. When he reached home he was laid on a couch unable to move his left hand or left leg and unable to talk. He remained so for half an hour, and then quite abruptly and within a minute or two he found he could talk normally and move his limbs. He never had a similar attack before or since. Examination two years later showed mitral stenosis and auricular fibrillation but no abnormal signs in the central nervous system and a normal blood pressure.

Case 14.—J. F., with mitral stenosis was known to have had auricular fibrillation since October 1942. In the evening of Oct. 30, 1943, just after a routine visit to his physician he felt dizzy on reaching home and lay down on a couch. He did not lose consciousness, but his wife noticed that he was confused and that the left side of his face and his left arm and leg were paralyzed. His nephew, a doctor who had just been my house physician, and his own physician were called and arrived thirty minutes later to find left hemiplegia and confusion of thought. The paralysis cleared gradually during the next thirty minutes, and after receiving "omnopon" (a proprietary mixture of opium alkaloids, papaveretum BPC) he slept with periodic breathing. In the morning he was still confused but was said to present no trace of paralysis. I examined him later in the day and found him still rather confused and with only the slightest weakness of the left upper limb and of movements of the left ankle. The tendon reflexes were brisk and equal and the plantar responses normal. By November 4 he had lost even these trivial signs. In May 1944, when I last heard from him, he had had no further attacks.

Case 15.—W. M., an insurance clerk aged 28, had suffered from rheumatic heart disease with auricular fibrillation for many years but still traveled 20 miles (32.2 kilometers) by train to London each day to his work. In 1935 while at his office desk his right hand abruptly became weak and clumsy and he found himself unable to hit the keys on his typewriter. At the same time he found himself unable to see out of his left eye. He was quite sure of this, for he covered first his left eye and then his right eye with his left hand. He felt confused and was unable to speak clearly, he believed. The attack lasted about an hour and then passed off completely, but my notes do not say whether the end was sudden or gradual. I saw him three months later and found signs of mitral stenosis and auricular fibrillation with aneurysmal dilatation of the left auricle. There were no signs in the central nervous system, but unfortunately the fundi were not examined. I heard from Dr. D. Bedford, his physician, that he died of cardiac failure a few years later without further attacks. There was no necropsy.

Case 16.—C. S., a girl of 15 years suffering from mitral stenosis and auricular fibrillation, was treated with quinidine and her rhythm restored to normal in 1927. In 1928 she was

Table 2.—*Cerebral Embolism in Mitral Stenosis and Auricular Fibrillation*

Case	Patient	Age	Sex	Heart	No. of Attacks	Nature	Duration	Loss of Consciousness
12	W. E.	56	M	Auricular fibrillation	1	Loss of vision, left eye	30 min.	No
13	A. N.	52	M	Mitral stenosis, auricular fibrillation	1	Hemiparesis, left; confusion	1 hr.	No
14	J. F.	50	M	Mitral stenosis, auricular fibrillation	1	Hemiplegia, left; confusion	1 hr.	No
15	W. M.	28	M	Mitral stenosis, auricular fibrillation	1	Paresis, hand, right; blind, left eye; aphasia	1 hr.	No
16	C. S.	15	F	Mitral stenosis, auricular fibrillation	1	Hemiplegia, right; aphasia	2 days	No
17	R. H.	30	F	Mitral stenosis	1	Hemiplegia, left	1 wk.	No
					1	Hemiplegia, right; aphasia	Persists	Yes
18	L. O.	41	F	Mitral stenosis, auricular fibrillation	6	Hemiparesis, left	1 hr.	No
					2	Hemiparesis, left	2 days	No
					1	Hemiparesis, left	2 mo.	No
19	B. T.	49	F	Mitral stenosis, auricular fibrillation	1	Hemiplegia, left	Months	No
20	G. W.	46	M	Mitral stenosis, auricular fibrillation	1	Hemiplegia, left	Residue at 2 mo.	No
21	D. O.	26	F	Mitral stenosis, auricular fibrillation	1	Hemiplegia, left	Residue at 4 mo.	No
22	J. J.	76	M	Auricular fibrillation	1	Hemiplegia, left	Died, 24 hr.	Yes

readmitted to University College Hospital under Sir Thomas Lewis, with congestive failure and treated with digitalis. At 1:45 p. m. on Nov. 12, 1928, she was noticed to be throwing herself about, the right corner of her mouth was down and she was trying to make herself understood but could only repeat words such as "jing." She understood what was said to her and could answer yes or no. She exhibited facial weakness on the right side and a flaccid paralysis complete in the right arm and nearly complete in the right leg. The tendon reflexes were not obtained in either leg; the plantar responses were flexor on the left, extensor on the right. There was no loss of consciousness. At 5:30 p. m. she could talk well, and the weakness had passed off to a considerable extent. On November 13 she appeared a little drowsy but otherwise normal entally. Slight weakness of the right side of the face and upper and lower limbs persisted, and the right plantar response was still extensor. On November 14 no weakness was found, but the plantar response was not tested. On November 15 the right plantar response was recorded as flexor. She was discharged on Feb. 6, 1929, still fibrillating but with no signs of failure or hemiplegia. She died in hospital of terminal bronchopneumonia on Jan. 6, 1932. Her brain was examined post mortem by Dr. R. T. Grant, who provided me with all her case notes. The brain, sliced horizontally, was normal except for a yellowish cyst, 14 mm. long, 4 mm. wide and 7 mm. deep, in the putamen of the left lenticular nucleus. To find the vascular lesion responsible for this cyst, the middle cerebral artery and its chief branches were opened up under the dissecting microscope; the arteries seemed normal. A block of tissue extending from the lesion to the base of the brain was cut in transverse serial section 10 microns thick. No lesion was found in any artery of the block.

Case 17.—A married woman of 30 was walking across the hall to her office one day in the autumn of 1939 when she felt queer and had to sit down. Onlookers thought she looked ill and sent for a physician, who sent her to Charing Cross Hospital; there she was kept for the afternoon and then sent home to bed. Her memory of the attack is that she felt hot and giddy but never lost consciousness; her face became drawn to the right and she talked queerly; her left leg dragged and her left arm was useless when she went to bed. On the first day she had difficulty in controlling her bladder. Her limbs recovered gradually, but she has since noticed that her left arm twitches and becomes useless for a few minutes when she is tired. She was admitted to the hospital in November 1941 with congestive cardiac failure, mitral stenosis with normal rhythm and normal arterial pressure (140 systolic and 100 diastolic). No abnormal signs were found in the central nervous system. She was treated with digitalis and discharged home. On July 21, 1942, her husband had found her normal on leaving home in the morning but unconscious on his return at night. She was admitted to the hospital in coma with stertorous respiration. The right side of her face was flabby and her right arm motionless, and both plantar responses were extensor; she was incontinent. She had congestive cardiac failure, but her rhythm was still normal. She slowly emerged from her coma, regaining control of the sphincter on July 25, and showing some recognition of her husband. She was discharged on Oct. 24, 1942, with a severe residual spastic paralysis of right arm and leg and weakness of the right face. She recognized what was said to her and could reply by a nod of the head, but her articulation was so imperfect that few could understand her.

Case 18.—L. C., a married woman of 41, was seen in 1941 when she had had ten normal pregnancies, the last six years previously. In 1936 she had an attack when she suddenly felt a buzzing in her head, the room seemed to go round and she fell to the floor without losing consciousness. When she tried to get up she found that she could not, for weakness of the left arm and leg. The left side of her face felt queer and she had difficulty in pronouncing her words properly. She recovered completely in an hour. During the next six years she had four further attacks similar to the first in which weakness of the left side lasted about an hour and three in which it lasted two or three days, but she had not lost consciousness in any. On Feb. 26, 1941, She had just come in from shopping when something "seemed to go click" in her head and she fell to the ground. Again there was no loss of consciousness and her left side was paralyzed. She could see normally but her mouth felt pulled over. The left leg recovered its power to some extent in the next few days, but when she was brought to the hospital six days after the attack she was found to have a spastic paralysis of the left arm, paresis of the left leg and weakness of the left side of the face of upper motor neuron type, and mitral stenosis with auricular fibrillation and a heart rate of 160 per minute. The plantar response was extensor on the left, flexor on the right. The arterial pressure was 144 systolic and 95 diastolic. Lumbar puncture on April 8 showed a clear colorless fluid not under pressure. By May 6 the left leg had recovered completely, but there was still slight weakness of the left side of the face and the left upper limb. In 1944 she had her eleventh confinement, before which she was admitted to hospital with congestive cardiac failure from which she made a good recovery. She was last seen in March 1946, when she had no signs of cardiac failure but was still fibrillating. She had had no further attacks and the signs in the central nervous system had disappeared.

Cases 19 and 20 will not be described, since these patients gave stories rather similar to that in case 21, without, however, having been so fully observed by me.

Case 21.—D. C., a spinster of 26 on Dec. 30, 1945, was kneeling down putting a dish in the oven when she felt queer and fell over backward, bumping her head. She called her cousin to help her because she could not get up. Her cousin stood her up, but she fell over into the fireplace. She could talk normally, but she had no use of her left arm, and her legs, particularly the left, were weak. She was quite clear in the head; she could understand what was said to her, could see well and had no vertigo. Thirty minutes later she was seen by Dr. Mandler, who found a left hemiplegia and sent her to the hospital. She was seen by my registrar, Dr. James, seven hours after the onset, when she showed incomplete paralysis of the left lower part of the face and complete flaccid paralysis of the left arm and leg, with diminished tendon jerks and a left extensor response. The eyes showed conjugate deviation to the right. Lumbar puncture the following day showed a clear fluid with no cells and 30 mg. of protein per hundred cubic centimeters at a pressure of 240 mm. There was slow recovery of power, but on April 9, 1946, the left arm still showed some weakness of the hand and fingers, while the left leg showed definite weakness, especially of the dorsiflexors of the ankle. The plantar responses were now both flexor.

Case 22.—J. J., a man of 76, was admitted to the hospital on April 30, 1944, with a history suggestive of a coronary thrombosis a few hours previously; he showed signs of acute pulmonary edema and of auricular fibrillation. He made a good recovery and was progressing favorably until, on May 7, 1944, while he was having breakfast, the right side of his face was seen to go weak and he became unconscious. A right hemiplegia with flaccid paralysis of the limbs, absent tendon jerks on the right and a right extensor response was found. He died the following day without recovering consciousness. Postmortem examination showed a recent thrombosis in the descending branch of the left coronary artery and a corresponding recent infarct of the heart. An embolus was found in the right middle cerebral artery which had produced an area of softening in the hemisphere about 3 inches (7.6 cm.) in diameter.

In mitral stenosis and auricular fibrillation the sudden development of ischemia affecting part or all of an organ is usually due to embolism of an artery, as operation[18] or postmortem examination shows, the embolus being expelled from the left auricle and lodging at the bifurcation of an artery or at the origin of a large branch where the caliber of the artery is abruptly reduced. It may therefore be assumed that the cerebral attacks summarized in table 2 were due to cerebral embolism. This was proved only for J. J. (case 22), who died twenty-four hours after the attack. The only other patient coming to necropsy, C. S. (case 16) showed no evidence of embolic arterial obstruction three years after the attack despite careful examination. Nevertheless no other cause can reasonably be suggested in this case, for she was only 15 years old, the main cerebral arteries were normal and she had no hypertension. The conclusion from this case is rather that present methods of examining the cerebral arteries do not usually reveal the cause of vascular obstruction unless this is very recent. The diagnosis of cerebral embolism is supported by the frequency with which the right side of the brain or eye (10 cases) was affected as compared with the left (4 cases), since the right carotid presents the more direct path. In concluding that embolism was the cause of the cerebral attacks of table 2 a reservation must be made of case 18, which was peculiar in that a total of eight attacks of left hemiparesis occurred, the last leaving a residue for two months. It is inconceivable that eight separate emboli were delivered to precisely the same small vascular territory and to that only. Other known causes such as epilepsy and tumor were excluded by the history and course, but in the absence of postmortem examination any explanation is pure speculation.

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[18] (a) Key, E.: Embolectomy for Embolic Disturbances, Acta chir. Scandinav. 54:339, 1922. (b) Jefferson, G.: Arterial Embolectomy, Brit. M. J. 2:1090, 1934.

It is not surprising that manifestations of focal cerebral ischemia should begin suddenly when an embolus occludes a cerebral artery. What is surprising is that the manifestations should be so brief and clear so completely in so many cases. It is, of course, well recognized that the degree of nervous impairment resulting from an organic lesion of a cerebral artery is greatest soon after the lesion occurs and then gradually recedes and that this is due at least in part to a gradual decline in the volume of ischemic cerebral tissue. Three reasons have been given to account for this phenomenon; namely, that brain tissue around the ischemic area is initially compressed by hemorrhage or edema which is removed gradually, that collateral circulation opens and restores the blood supply to all or part of the territory originally ischemic and that the clot is recanalized and blood flow reestablished through the occluded artery. In the case of embolism a fourth factor may be added; namely, that the embolus is forced into a side branch allowing the main artery to transmit blood once more. Of these four possible causes two can be excluded on time relations alone. Paralysis developed so rapidly in these attacks and gained its full extent so quickly that edema of the brain around the lesion can be excluded as a significant factor in either the development or resolution of the clinical picture. Again, the rapid recovery clearly was not due to recanalization of clot. There remain, therefore, the possibilities of opening up of collateral circulation and the moving on of clot. Lewis, Rothschild and I [19] described briefly a case of transient paralysis of a limb in which clear evidence of the moving on of an embolus was obtained.[20] In at least 2 of the cases of table 2 this would seem to have occurred. Thus A. N. (case 13), an intelligent schoolmaster, stressed that the recovery from his paralysis was abrupt, being complete in at most a few minutes. This suggests strongly the sudden opening of an artery, as might happen if a clot in the middle cerebral artery had been forced into the mouth of a side branch, freeing the main artery abruptly. Again, the attack in case 15 was probably due to the lodging of an embolus in the left internal carotid artery at the origin of its ophthalmic branch. The clearing of vision and of the paresis can most easily be explained by the moving on of the clot, though it is remarkable that a clot of this size should have produced so little in the way of permanent disability. A similar phenomenon may have happened in case 12. But even in these cases the clot must have finally lodged in, and blocked, some artery. In the remaining cases there is nothing to suggest movement of an embolus, which can scarcely be expected always to occur. In case 16, the most fully observed, the resolution of the paralysis was gradual and the final area of necrosis small and limited to a small area, the putamen. In this case at least the area originally ischemic must have been much larger than the final necrosis and the recovery can only be explained satisfactorily on the gradual restoration of blood flow to the periphery of the lesion by the opening of collateral vessels.

The extent of anastomosis between different orders of cerebral arteries has long been a matter of controversy, arising in part at least from difference in technic. There is now abundant evidence that anastomotic channels exist. Beevor [21] showed that the territory supplied by the middle cerebral artery can be injected through the anterior or posterior cerebral arteries. Pfeifer, Campbell and others [22] have shown in human and cat's brains that the pial vessels, and to a less extent the basal vessels, anastomose at the capillary, arteriolar and arterial level in that order of frequency. Evans and McEachern [22d] have shown that bismuth, injected into the carotid of a monkey just after death, appears in the middle cerebral artery distal to an occluding clip applied to the artery just before death. The anatomic facts and the physiologic behavior of the vessels thus agree in suggesting that the recovery from a localized occlusion of a cerebral artery is at least in part due to restoration of the circulation through collateral channels.

It is clear from the case histories and from inspection of tables 1 and 2 that the cerebral attacks occurring in patients with mitral stenosis and auricular fibrillation are similar in kind and duration to those occurring in severe hypertension. In both there may be a sudden paralysis of cerebral origin which clears completely in an hour or so or clears more slowly leaving a prolonged or permanent disability. There is no clear division in either series between paralysis that is completely and quickly reversible and paralysis with a permanent residuum. In each series an attack that is entirely transient and one with a more permanent residue may occur in a single patient (e. g., cases 3 and 17). Finally in both series examination of the brain long after the attack reveals a small area of necrosis, probably ischemic in nature, near the cerebral area presumably involved in the attack. In 2 cases of hypertension (1 and 3) and 1 case of embolus (16) in which transient hemiparesis occurred, similar lesions were found in the putamen. Even in the embolic case serial sections failed to reveal the vascular occlusion to which the lesion originally owed its cause.

COMMENT

The close similarity clinically and pathologically between the attacks in the two conditions suggests a corresponding similarity in the underlying vascular events. In cerebral embolism the onset of the attack is due to arterial obstruction, in this case by an embolus, and the resolution to restoration of circulation through the opening of collateral vessels. The suggestion is clear that the hypertensive cerebral attacks are likewise due to organic arterial obstruction, also of sudden development, and that their resolution is due to restoration of circulation through dilatation of collateral vessels. This is not a new suggestion. As long ago as 1880 Jackson[23] wrote, "Transient paralysis may be owing to a small clot or to softening from blocking of a small vessel."

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[19] Lewis, T.; Pickering, G. W., and Rothschild, P.: Observations upon Muscular Pain in Intermittent Claudication, Heart 15: 359, 1931.

[20] Subsequent to publication the diagnosis was confirmed post mortem.

[21] Beevor, C. E.: On the Distribution of the Different Arteries Supplying the Human Brain, Phil. Tr., London, S. B. 200: 1, 1909.

[22] (a) Pfeifer, R. A.: [illegible] der Grosshirnrinde, Berlin, Julius Springer, 1 [illegible] Untersuchungen für die Angioarchitektonik des [illegible] d. 1930. (c) Campbell, A. C. P.: Vascular Architecture of Cat's Brain, A. Research Nerv. & Ment. Dis., Proc. 18: 69, 1938. (d) Evans, J. P., and McEachern, D.: Circulatory Changes in Cerebral Vascular Occlusion and in Cerebral Cicatrization, ibid. 18: 379, 1938.

The suggestion here made as to the cause of the cerebral attacks in chronic hypertension violates no cardinal principle in vascular physiology and is in harmony with the pathology of hypertensive disease. Thus it is well recognized that in hypertension an artery may suddenly become occluded by clot which forms usually on some preexistent cushion of intimal thickening. It is also known that in hypertension the arterial lumen may be occluded by hemorrhage into the arterial wall or by swelling of the arterial wall as in acute fibrinoid necrosis, but it is not yet known how suddenly these events take place. Any of these forms of closure taking place abruptly would account for the attacks just discussed and which are most frequently concerned can only be told by careful histologic examination of the brain shortly after an attack.

During the present century it has become fashionable to ascribe localized and reversible disturbances of circulation to vascular spasm; in other words, to a strong localized vasoconstriction. In some instances the agent concerned in producing this localized vascular response has been clear, and in these critical examination of the facts has substantiated the hypothesis. Examples are (*a*) acrocyanosis and certain varieties of Raynaud's disease in which the agent is cold, and (*b*) arterial spasm due to trauma of the arterial wall and adjacent tissues. In others it has not been apparent what local vasoconstrictor agent has been at work, and in many of these fuller investigation of the facts has revealed organic arterial occlusion as the essential pathologic event. This is true of other varieties of Raynaud's disease, such as that in which digital necrosis occurs suddenly and bilaterally and that associated with cervical rib.[24] It is true also of certain events associated with disease of the coronary arteries, which like the cerebral arteries were at one time regarded as end arteries. The recent studies of Blumgart, Schlesinger and Davis[25] have shown that occlusion of a coronary artery may produce myocardial infarction, but an artery may also be found blocked in subjects in whom heart disease has never been suspected and in whom the occlusion must therefore have produced no disturbances or only minor ones. The variation in the extent and duration of myocardial ischemia following coronary occlusion must clearly depend on the extent of the collateral circulation, as has been postulated in the case of the brain.

Of all vascular territories the brain is the least likely to show strong localized vasoconstriction, particularly when this is supposed to occur suddenly and without apparent cause. The present paper has shown that organic occlusion of a cerebral artery or arteriole is a more probable cause of the attacks in question. Arguing from the analogy of the coronary arteries, it seems not improbable that occlusion of cerebral arteries may be followed by a variety of phenomena, varying from the classical apoplexy with residual hemiplegia, through the attacks of transient paralysis here discussed, to disturbances so slight as to be recognizable with difficulty. A great deal remains to be done, particularly in the correlation of clinical studies, with the anatomic changes in the cerebral vessels as revealed by the most modern methods. Spasm of the cerebral arteries has been postulated also in migraine and epilepsy. In migraine evidence has been produced that headache is due to arterial dilatation, but the pathogenesis of the aura is still obscure and relevant facts are so few as to make discussion fruitless. The hypothesis that the epileptic attack is due to cerebral vascular spasm has now been very generally abandoned. Nevertheless, Penfield's[26] observations of intense constriction of the arteries of the exposed cortex following an epileptic attack induced by electrical stimulation stand, and are at present imperfectly explained, though it is to be noted that in animals both electrical and mechanical stimulation have produced intense constriction of the pial arteries.

SUMMARY

Hypertensive encephalopathy comprises at least two distinct clinical and pathologic conditions. In acute hypertension or chronic hypertension with recent exacerbation, attacks of headache, vomiting, convulsions and coma are generally due to acute edema of the brain; this edema is less likely to be caused by excessive constriction of the cerebral arteries, as is now commonly held, than by defective constriction, as Traube originally supposed.

In chronic hypertension attacks of localized sensory or motor paralysis of brief duration are probably not due to cerebral arterial spasm but to sudden organic arterial occlusion, for example by a thrombus. The speed and completeness of recovery from paralysis will depend on the size of the final infarct and on its position. The arguments for this hypothesis are: 1. The cerebral arteries have comparatively poorly developed muscular walls. 2. They constrict feebly to known vasoconstrictor agents. 3. In 11 patients with chronic hypertensive encephalopathy no sharp dividing line was found between attacks in which paralysis lasted only a few minutes and attacks from which complete recovery did not occur. 4. In 11 patients embolic occlusion of cerebral arteries produced attacks that were precisely similar in kind and range to those occurring in hypertension.

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[23] Jackson, J.H.: On a Case of Temporary Left Hemiplegia, Brain 3: 433, 1880.

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Amount of Oxygen in Blood.—Normally, 100 cc. of arterial blood contains about 21 cc. of oxygen. Under normal basal conditions, only about 5.5 cc., i.e., about 30 per cent, is removed from the blood as it passes through the capillaries. The remaining 15.5 cc. may be regarded as reserve oxygen which can be called on during exercise or other unusual states to prevent asphyxia of the tissues. The anemic patient, to the extent to which he relies on the mechanism of more complete oxygen abstraction, diminishes his reserve oxygen and sacrifices this factor of safety; the degree of sacrifice would depend on the severity of anemia.—Blumgart, Herrman L., and Altschule, Mard D.: *Blood-the Journal of Hematology*, April 1948.

REHABILITATION OF THE HEMIPLEGIC PATIENT

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Physical medicine for the rehabilitation of the hemiplegic patient is not a new innovation in the field of medicine. Types of treatment and various regimens have periodically been elaborated in medical publications in years past.[1] Unfortunately, however, as with many aspects of medicine, the widespread application and general appreciation of what can be offered to these patients has been largely deficient. In civilian practice expense has undoubtedly been a major factor in this deficient utilization of physical therapy. Lack of teaching of physical medicine in medical schools and the heretofore scarcity of properly trained technicians and medical specialists in the field have also contributed toward limiting the more general application of adequate rehabilitation.

The urgent demand in service hospitals during the recent war for rapid rehabilitation of sick and injured personnel provided the stimulus for the greatest use of physical medicine and its allied rehabilitation activities ever adopted generally. The results have been widely reported and have not only soundly established physical medicine in the armamentarium of the medical practitioner as the third phase of medicine but have assured its recognition as a separate and potent medical specialty.

With the exigencies of the war period abated and the great number of wounded persons largely rehabilitated, time is now being found to focus attention more definitely on the application of the more intensive regimens for rehabilitation in the treatment of various chronic disabilities. In this broadened application, perspective is governed to a large extent by experiences gained in wartime rehabilitation.

In one naval hospital such an intensive rehabilitation program has been in operation for hemiplegic patients in the past eight months. Prior to the institution of this program, there had been no concerted or continuous effort to provide a systematized regimen for restoring ambulation and independence to these patients. Consequently, at the start the problem was more complex because of chronicity and its attendant deformities, such as atrophy of disuse, apathy and general poor health among most of the patients. The program, nonetheless, was started for this group of patients. As new patients came under observation, they were included promptly in the regimen. This arrangement provided opportunity for critical comparison of results obtained in the two groups of hemiplegic patients. All were hospitalized patients under daily observation; hospitalization was continued as long as necessary without personal expense to the patients. Physical therapy, similarly, was available in the hospital as needed by the patients without consideration of expense.

TREATMENT

In rehabilitation of the hemiplegic patient, the objectives of physical medicine and the measures for directing therapy are twofold, namely, prophylactic and definitive.

During the acute phase of the patient's illness, treatment is solely medical, supplemented by intelligent nursing care.[2] Maintenance of cleanliness; frequent change of positions, insistence on good bed mechanics, sandbags or pillows being used if necessary, are all important in the prophylaxis against trophic changes in the skin and contracture deformities.

The program of rehabilitation is begun from two to four weeks after the onset of acute illness. Initial flaccid paralysis is usually followed within weeks by spasticity; the start of the rehabilitation regimen should precede the onset of this latter phase.

The initial program is prophylactic. Daily passive motion is carried out to prevent the formation of adhesions of the joints and the shortening of muscles, which would predispose to contractures and ultimate deformities. The tendencies toward adduction of the shoulders, flexion at the elbows with pronation of forearms, flexion and external rotation of the hips; flexion at the knee and extension and inversion of the foot are prevented by proper posture and by passive motions of normal range. Local application of heat and massage may be employed after the first week but are not indicated except in cases in which local pain is particularly disturbing or an obstacle to the performance of normal exercise of the joints. The use of Hubbard tanks for reeducation exercises and for early active exercises under water is valuable and is employed almost routinely in this early phase of the reconditioning program. These exercises may be given three to six times a week for thirty minutes each as an addition to the measures already mentioned.

As soon as voluntary motion is possible the patient starts active exercises in bed; these are done several times a day in increasing amounts so that atrophy of disuse may be kept at a minimum. Exercise routines have been well outlined in the literature.[3]

Definite efforts at reambulation should be started early. The period varies from two to eight weeks, but ambulation is physically feasible for the average patient within three to four weeks after his acute illness.

First, sitting in bed is carried out twice daily for several days to readjust the patient to an upright position. He then is allowed to support his weight by placing both feet on the floor in order to regain activity of normal standing reflexes and to relearn weight shifting and balance. After this has been practiced twice daily for several consecutive days, the patient is ready for the gymnasium.

Exercises in the gymnasium must be under the supervision of a physical therapist. In the beginning they consist only of mat exercises, e. g., straight leg raising, overhead extension of the arms, the unaffected arm being used to assist the affected one, abdominal exercises and extension of the back. For uniformity, these exercises are given for five minute periods with or without the assistance of a technician as needed by the individual patient. The exercises are increased in number as tolerated.

From the Department of Physical Medicine, United States Naval Hospital.

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[3] Coulter.[1b] Prochazka.[2]

Stand-balance procedures are carried out daily, and the patient is graduated to a mechanical walker as quickly as possible. With the return and increase in muscle power over a period of weeks, he is then allowed to walk between parallel bars and finally to walk with canes. Supervision of gait is important, and patients are taught to practice reambulation procedures before mirrors, with conscious appreciation and correction of errors of which they are guilty.

New hazards are added one by one, and in the course of his rehabilitation the patient must master stair climbing, curb stepping, inclines, beds, toilets, chairs, dressing and undressing and achieve other accomplishments essential to his self sufficiency.

Ultimately it is desirable that canes and other mechanical appliances be discarded entirely. This is of course dependent largely on the degree of damage inflicted at the initial onset of illness and cannot always be done.

Regimens vary for each patient under treatment. Often the resistive exercises is indicated for rebuilding specifically affected muscles or muscle groups. In many instances of more demanding general reconditioning devices such as stationary bicycles and rowing machines can and should be utilized.

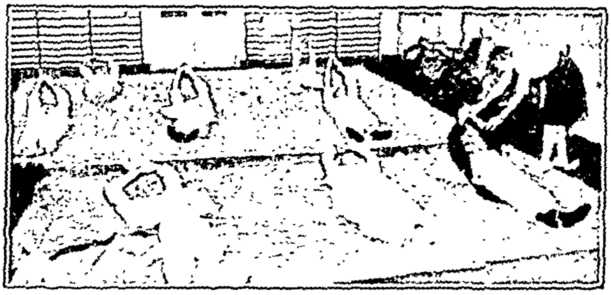

Fig. 1.—Group therapy is a potent stimulus to the morale and cooperation of the patient.

Score card achievement sheets such as those devised for paraplegic patients in Veterans Administration centers[4] may be used as competitive aids to morale.

Group therapy (fig. 1) is important not only in conserving labor but in building morale and a healthy competitive spirit among patients. Exercising on mats in groups and walking in or before groups are invaluable stimuli to the maintenance of good morale and good perspective among these patients, who notoriously are prone to become morbidly introspective and emotional. The importance of this is emphasized when it is remembered that a patient's recovery is almost entirely dependent on his efforts and cooperation and only a small part is the result of supervision and direction. Unless determination and cooperation can be instilled and nurtured, rehabilitation is defeated from the start.

For patients with motor aphasia retraining in speech, carried on under the supervision of the hospital's aural rehabilitation center, is started early and is valuable in expediting and augmenting improvement of this impediment.

REPORT OF CASES

A total of 28 patients (table 1) with hemiplegia which was the result of cerebrovascular accidents were subjected, over an eight month period, to an intensive program of physical rehabilitation. The average age of these patients was 55.2 years. In 13 cases the hemiplegia was on the left side and in 15 on the right.

Chronic Cases.—Eighteen patients initially admitted to the program were chronically ill, having had vascular accidents three or more months previously. The average duration of illness was thirteen and a half months. None of these patients had been subjected to rehabilitation procedures, and all were in the hospital for domiciliary and nursing care. Three were able to stand with support, and the others were either totally confined to bed or were able to be in a wheel chair. All required assistance in getting in and out of bed, in using a toilet or bedpan and in propelling a wheel chair. Morale was extremely and consistently low; they were irritable, querulous and unhappy. After initiation of the program, which lasted an average of one hundred and eighteen and a half days and averaged 95.8 treatments per patient, 5 of the 18 patients were able to walk and were discharged. Reambulation was accomplished in an additional 7 cases. In 3 cases there was no improvement. In the remaining 3 there was slow improvement, which has not yet permitted independent ambulation.

Table 1.—*Results from Rehabilitation of Twenty-Eight Hemiplegic Patients*

Case	Age	Duration of Hemiplegia	Rehabilitation Period, Days	Number of Treatments	Results
			Chronic Cases		
1	57	19 mo.	106	116	Reambulation; discharged
2	50	14 mo.	120	82	Failure; mental deterioration
3	69	15 mo.	109	98	General systemic improvement
4	57	6 mo.	189	147	
5	50	5 mo.	93	74	
6	58	26 mo.	160	87	
7	56	15 mo.	190	201	
8	57	13 mo.	129	117	
9	68	12 mo.	177	183	
					charged
10	50	48 mo.	69	94	Reambulation
11	52	15 mo.	22	17	Reambulation; discharged
12	56	15 mo.	186	136	Reambulation
13	47	16 mo.	169	127	Improved; progress continues
14	68	5 mo.	20	10	Reambulation
15	52	7 mo.	113	138	Reambulation
16	67	6 mo.	13	13	Failure; discontinued; mental deterioration
17	52	4 mo.	81	57	Reambulation; discharged
18	51	3 mo.	28	24	Failure; discontinued; mental deterioration
Av.	65.5	13.5 mo.	118.5	95.5	
			Fresh Cases		
1	58	2 wk.	16	14	Reambulation
2	56	5 wk.	38	24	Improved; progress continues; no reambulation yet
3	57	7 wk.	22	17	Reambulation
4	52	8 wk.	90	37	Reambulation
5	46	4 wk.	100	76	Reambulation; discharged
6	59	6 wk.	88	50	Reambulation
7	57	6 wk.	84	56	Reambulation; discharged
8	58	8 wk.	55	28	Reambulation; discharged
9	49	8 wk.	58	37	Reambulation; discharged
10	53	3 wk.	71	57	Reambulation; discharged
Av.	51.5	5.4 wk.	67.1	41.6	

Case 1.—J. E. K., a 50 year old white man, was admitted to the hospital on Sept. 10, 1945, critically ill with hemiplegia of the right side which was the result of cerebral thrombosis. On his admission no history was elicited because of the presence of aphasia. Examination revealed complete hemiplegia of the right side, moist coarse rales with impaired resonance at the base of both lungs and a blood pressure of 128 systolic and 88 diastolic. There was auricullar fibrillation, with a deficient pulse and weak heart sounds; the liver was palpable 3 fingerbreadths below the right costal margin. Hyperactive deep tendon reflexes were present on the right side, and there was a positive Hoffman sign and an equivocal Babinski sign. The diagnosis on admission was (1) severe cerebrovascular injury, possibly on an embolic basis in view of the auricullar fibrillation and involving an extensive

area of the brain (motor area, left parietal lobe and the internal capsule on the left) and (2) auricular fibrillation on the basis of arteriosclerotic heart disease.

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[4] "What's My Score?" Veterans Administration Pamphlet 10-10, 1946, p. 36.

The patient improved on supportive therapy, and by October 10 he was able to be out of bed occasionally in a wheel chair. There was slow gradual return of function in the upper part of the right leg, but he was unable to walk or stand and required lifting. As a result of inactivity there developed an external rotational contracture of the right hip and a flexion contracture of the right knee. By July of 1946 there was considerable orthostatic edema of both legs, attributable to long hours of inactivity. During this time he received only spasmodic physical therapy.

On Oct. 22, 1946, a rehabilitation program was begun. At this time the patient was unable to stand or to get to and from his wheel chair. There was an external rotational contracture of the right hip and a 45 degree flexion contracture of the right knee. Abduction of the right shoulder was limited to 90 degrees; muscle function in the right upper extremity was good throughout. The right leg was edematous, and muscle function was fair. Daily reconditioning exercises were begun in the gymnasium. In addition, forceful stretching exercises were carried out twice daily for the contractures. Heat and massage were applied concurrently in the department of physical therapy to minimize secondary soreness and pain. As the knee range increased over a period of weeks to full extension, reambulation was begun. Weakness of the right quadriceps muscle from disuse precluded immediate full weight bearing, and a brace to stabilize the knee was needed for several weeks until the muscle had gained sufficient strength through resistive exercises to enable the patient to support himself. Progress was continuous. One hundred and sixty-nine days after the start of reconditioning the patient was able to walk with the aid of two canes and without braces. He is capable of getting in and out of a chair alone, and of getting to and from a toilet. His gait is slow, but it is sure. The motor aphasia has persisted in degree, but there has been sufficient improvement to permit of meager conversation. There are no residual contractures. The patient is self sufficient.

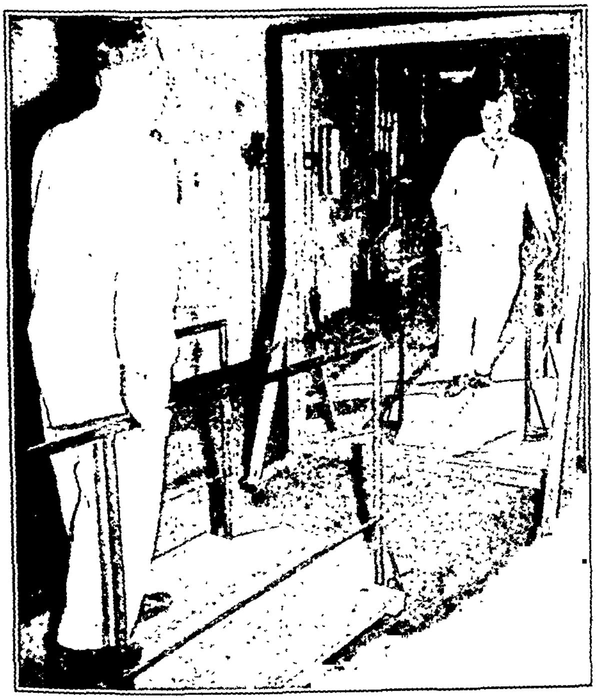

Fig. 2.—The patient in case 1 had been incapacitated for fifteen months prior to the start of the program of rehabilitation; after one hundred and eighty-six days he was self sufficient.

Case 2 (fig. 2).—L. U., a 54 year old white man, was admitted to the hospital on July 12, 1945, with partial spastic paralysis of the left upper extremity and complete flaccid paralysis of the left lower extremity.

In August 1944 the patient first noticed weakness of the first, fourth and fifth fingers of the left hand after a sudden spell of dizziness and fainting; this was followed by an increasing weakness of the left arm and progressive inability to approximate the fingers of the left hand or to perform fine movements of the fingers. Because of the persistence of this weakness he was admitted to the hospital in January 1945 for two weeks' investigation. His systolic blood pressure at this time was recorded as 200 mm. of mercury; diastolic pressure was not recorded. A diagnosis of hypertension with hemiplegia was made at this time.

In March of the same year the patient entered a civilian hospital for further investigation of his disability. Myelograms at this time failed to demonstrate any evidence of a space-consuming lesion in the skull or in the cervical region of the spine; some communicating hydrocephalus was seen. It was noted at this time that the patient was depressed and antagonistic and that he was unwilling to help himself and had assumed a defeatist attitude. He was examined psychiatrically, and it was advised that therapy be directed toward getting him to accept whatever disability he had and to refrain from giving up all his activities by trying to compensate by increased dexterity of his other arm and hand. For about six weeks he was given physical therapy until he was discharged to his home.

On July 9, 1945, the patient lost control of his left foot, and by the next day flaccid paralysis of the entire left lower extremity had developed. On readmission to the hospital on July 12 there was complete hemiplegia of the left side. The blood pressure was 170 systolic and 90 diastolic. Examination of the fundi revealed moderate arteriosclerotic changes, without hemorrhage or exudate. There were hyperactive deep tendon reflexes on the left side, with ankle and patellar clonus, positive Hoffmann and Rossolimo signs and absent abdominal reflexes. It was felt that hypertensive arteriosclerotic disease was the basis for the hemiplegia. In the course of the next fifteen months the patient was subjected spasmodically to physiotherapeutic measures including hydrotherapy, application of luminous heat, massage and occasional ambulation exercises in a walker. There was slight improvement, but during this time there was never inaugurated an intensive systematized regimen for his rehabilitation.

On Oct. 31, 1946, an active program of reconditioning and reambulation was started. At this time the patient could hobble with a cane if assisted; without assistance, he could not stand. One hundred and eighty-six days after the start of the rehabilitation program he had progressed so that he could wheel his wheel chair, get in and out of it unassisted, walk alone with the use of one cane, ascend and descend stairs and get to and from a toilet and in and out of bed. From a standpoint of personal self sufficiency he is independent. There is residual spasticity of both left extremities, with little function in the upper one, but good power and control of the lower.

Fresh Cases.—In 10 of the cases in the series of 28 the cerebrovascular accidents had occurred less than three months prior to initiation of rehabilitation. These were classified as fresh cases. The average interim between the onset of acute illness and the admission to the program was 5.4 weeks. After an average of 67.1 days, during which time they received an average of 41.6 treatments, 9 of the 10 patients were restored to an ambulatory status. Five of this group of 9 were discharged from the hospital. In the tenth case there was improvement, but after seven weeks of treatment the patient was not yet able to walk. Treatment is being continued, and the prognosis is good.

Case 3 (fig. 3.)—D. P., a 57 year old white man, was admitted to the hospital on Oct. 31, 1946, with trichophytosis of the left foot. The patient was known to have diabetes. The infection in the foot healed under treatment, and the diabetes remained well controlled.

On Nov. 20, while still in the hospital, the patient suffered a cerebrovascular accident, which resulted in complete hemiplegia of the left side. For two days he was semistuporous. On the second day it was noted that he could move his left leg slightly. Within ten days the acute phase subsided and spastic hemiplegia of the left side remained. On November 30 physical therapy was begun. The patient received daily treatments in the Hubbard tank, with underwater reeducation of muscles, active exercise and normal range exercises to prevent muscle shortening and contracture secondary to the spasticity. On December 13 hydrotherapy was discontinued and active efforts at reambulation were begun. He was taught standing, balance and weight shifting, and he was then graduated to mat exercising. Within the next month he was using a walker, then parallel bars and finally a single cane. He mastered stair climbing, curb stepping, inclines, beds and chairs, and by March 7, 1947, eighty-four days after the start of his rehabilitation, he was completely self sufficient and was discharged from the hospital. On his discharge there was still complete paralysis of the left upper extremity and spasticity of the lower extremity, but muscle power and control were excellent.

CASE 4.—W. T., a 49 year old white man, was admitted to the hospital on Feb. 1, 1947, acutely ill from a cerebrovascular accident.

For five years prior to his admission the patient had had hypertension and had been under the care of his physician. Two weeks prior to his admission he began having blackout spells and was confined to bed. One week later there developed headaches, *progressive motor aphasia and weakness of the right extremities*.

FIG. 3.—The patient in case 3 was initiated early into the program, *was graduated to active reconditioning within six weeks after the occurrence of the cardiovascular accident and was discharged as rehabilitated after eighty-four days.*

On admission to the hospital the patient was acutely ill, dyspneic and stuporous. His blood pressure was 165 systolic and 110 diastolic. There were diffuse coarse rales throughout both pulmonary fields and complete hemiplegia of the right side, with increased deep tendon reflexes and a positive Babinski sign on this side. The patient was aphasic. During the next month he improved slowly. On March 3 rehabilitation was started. Within the ensuing thirty-eight days he was completely ambulant, without need of canes or other supports. There was good return of function in both right extremities. The aphasia improved so that he could carry on a laconic but intelligible conversation. He was discharged, ambulatory and self sufficient, on April 26.

COMMENT

In the initiation of an active regimen for patients with proved defective vascular systems, there was naturally considerable apprehension as to the limits of exercise which might safely be tolerated. Accordingly, an effort was made to evaluate the demands of the exercises to be employed (table 2). Individual patients were subjected to the exercises, and the blood pressure and pulse were checked just prior to and immediately after each procedure. Only one exercise a day was done by each patient, and a rest period of five minutes preceded each. Similarly, combined continuous exercises for periods of twenty minutes were performed by the patients and the blood pressure and pulse recorded. It was surprising to note the apparently excellent tolerance of these procedures by all patients and the relatively minor effect on their vascular mechanisms. However, despite the tolerance of even the combined twenty minute exercises, patients were never subjected to exercise for a period of this length in the gymnasium but were permitted to rest between procedures. No difficulties were encountered among the 28 patients at any time as a result of the reconditioning procedures.

Cooperation on the part of the patient, fostered by his desire to regain his independence, is the greatest factor in assuring the success of his ultimate rehabilitation. Normally the hemiplegic patient's conception of his prognosis is a gloomy one based on lay associations and observations. Hobhouse[18] has pointed out, however, that if the medical attendant has clear ideas on the subject, is aware that the outlook for uncomplicated hemiplegia is potentially good and can convince the patient of this fact he will appreciably improve the prospect. Fortunately, morale is rather easily stimulated ; this is a contrast to younger patients wounded in war whose youth, immature perspective and undue desire to compensate at times rendered them less cooperative. Because of a mature perspective, the hemiplegic patient appreciates more fully the limitations imposed by his disability and is accordingly more earnest in his desire to recoup his loss.

The extent of ultimate functional return is dependent primarily on the degree of damage wrought by the vascular accident. Secondarily, however, the expeditious and intelligent direction of the program of rehabilitation markedly augments the favorable outlook. The treated patient always shows better results than the untreated patient, and delay modifies in direct degree the success of the final result.

By and large, the job is one of salvaging all innervated muscle through reeducation and the building of muscular power to a maximum functional level with remedial exercises.

The least return of function occurs always in the fingers and wrist, with greater return proximally toward the shoulder. In a large percentage of cases there is minimal functional return throughout the upper extremity. The greatest return occurs always in the proximal part of the lower extremity, with loss graduated distally. In no case in this series has loss of function in the lower extremity been complete or sufficiently extensive to preclude the possibility of reambulation. In the 3 chronic cases in which reambulation was not effected, the hindering factor was mental deterioration and not paralysis. Hobhouse[18] expressed the belief that the greater return of function in the lower extremity as compared with the upper is the result of the fact that the lower extremities must be used together to be of functional value whereas this is not true of the upper extremities. He further stated that the pathologic damage to the innervation productive of the hemiplegia is no greater in the upper extremity than in the lower but that the relative deficiency in return of function in the arm is a manifestation of disuse. He advocated early use of the upper extremity, even to the extent at times of putting the unaffected arm in a cast, and reports good results in his cases. The frequently poor return of function in upper extremities in this series is therefore possibly due to inadequate therapy.

In a comparison of the results of treatment among the 18 chronic cases and the 10 recent cases of hemiplegia, it is of interest to note that the time necessary to bring about reambulation in the recent cases was roughly half as long as that required in the chronic cases. It is also noteworthy that no failure occurred when reconditioning was begun promptly while among the chronic cases no progress was made in 3 and in 3 others progress was slow despite protracted periods of treatment. Reambulation was brought about in 90 per cent of the cases observed early as compared with 66 per cent of the chronic cases. This may not be wholly a valid comparison, since among recent cases a certain percentage of spontaneous recoveries should normally be expected. On the other hand, the absence of failure cannot be minimized.

Table 2.—*Cardiovascular Responses to Exercises by Hemiplegic Patients* *

Patient		Leg-Raising Exercises, 5 Minutes		Arm Extension Exercises, 5 Minutes		Back Extension Exercises, 5 Minutes		"Sit-Up" Exercises, 5 Minutes		Combined Exercises, 20 Minutes		Walking, 5 Minutes	
		Blood Pressure	Pulse	Blood Pressure	Pulse	Blood Pressure	Pulse	Blood Pressure	Pulse	Blood Pressure	Pulse	Blood Pressure	Pulse
C. G.	Before...........	132/ 80	84	142/ 84	92	122/ 82	84	132/ 82	86	122/ 72	80	....	..
	After.............	144/ 84	98	150/ 96	104	154/ 90	102	144/ 78	100	132/ 74	86	....	..
L. F.	Before...........	174/128	84	190/128	86	190/126	90	178/122	84	180/126	82	170/128	96
	After.............	195/132	96	182/126	94	196/132	106	182/126	94	196/128	96	178/132	100
L. U.	Before...........	166/100	88	150/ 98	80	152/ 88	78	150/ 98	80	146/ 80	86	144/ 88	84
	After.............	184/104	88	158/100	84	154/ 88	80	158/100	84	160/ 92	94	154/ 88	88
H. L.	Before...........	126/ 68	84	122/ 80	84	128/ 88	80	122/ 88	80	120/ 76	80	122/ 80	88
	After.............	134/ 92	96	130/ 84	88	132/ 90	80	126/ 88	88	132/ 80	82	124/ 86	96
J. D.	Before...........	134/ 82	80	134/ 76	92	140/ 90	92	138/ 82	88	128/ 76	78	138/ 88	92
	After.............	140/ 80	84	136/ 78	98	142/ 92	96	142/ 82	100	136/ 82	90	148/ 90	92
E. M.	Before...........	152/ 78	88	152/ 86	84	154/ 80	84	150/ 90	92	152/ 68	88	154/ 70	92
	After.............	158/ 80	88	170/ 98	92	168/ 84	100	160/ 90	100	160/ 84	92	166/ 80	108
B. O.	Before...........	132/ 82	92	....	..	....	..	.....	.	....	..	....	..
	After.............	134/ 88	100	......	..	....	..	....	..	....	..	....	..
E. C.	Before...........	114/ 76	88	96/ 62	80	112/ 78	84	104/ 72	84	112/ 70	88	100/ 64	84
	After.............	120/ 80	92	110/ 74	88	114/ 80	84	104/ 72	84	118/ 74	92	114/ 74	100
J. B.	Before...........	100/ 70	80	110/ 58	80	110/ 58	88	104/ 68	80	....	..	....	..
	After.............	106/ 70	88	120/ 70	88	110/ 70	96	106/ 70	88	....	..	....	..
W. T.	Before...........	164/ 96	78	160/102	80	.....	..	164/ 98	80	......	..	....	..
	After.............	170/ 94	84	178/110	92	....	..	184/112	94	....	..	....	..
W. W.	Before...........	140/ 92	84	138/ 90	88	144/ 98	100	134/ 92	96	140/100	84	130/ 90	84
	After.............	150/ 98	88	154/100	96	160/108	108	138/ 90	100	158/ 96	90	130/ 90	88

* All procedures were preceded by a five minute rest period.

Among the chronic cases there were a few in which reambulation was accomplished relatively soon after the start of reconditioning. This can be attributed to (1) a less degree of initial neurologic damage and/or (2) greater activity and therefore greater personal rehabilitation by the individual patient.

In directing the physical reconditioning of the hemiplegic patient, self sufficiency is the basic objective desired and adeptness a secondary consideration to be striven for but not insisted on. Training in posture and gait and the prevention of bad habits are important and must be closely guided. When there has been minimal permanent damage, a rhythmic and coordinated gait is completely possible and attainable through careful training. In a great many cases, however, ambulation is really "self propulsion" rather than rhythmic walking. This "propulsion" may well be the maximum that is possible in the face of the residual damage, and in such cases so long as it meets the criterion for self sufficiency it must be considered satisfactory. A patient may continue to need one or two canes indefinitely. Circumduction types of walking have been condemned by many writers. However they often constitute the patient's maximum adeptness and as such should be accepted as satisfactory if self sufficiency is thus attained. The same principle applies to stair climbing, dressing and undressing, getting into and out of a bed and to and from a toilet and the numerous other hazards which must be mastered in the process of rehabilitation.

Among the chronic cases, in which the period of disability averaged thirteen and a half months when rehabilitation was begun, the immediate major problems were the contracture deformities and the atrophy of disuse. Initially the contractures had to be corrected through stretching exercises. To be effective stretching must be forceful and at least temporarily painful, and it must be done regularly several times daily. Various physiotherapeutic measures such as heat, diathermy, hydrotherapy and massage are valuable adjuncts in minimizing consequent soreness. The most commonly encountered deformities in this series were those secondary to contractures of the pectoral hip external rotator, hamstring and gastrocnemius muscles.

Generally there are few indications for the use of braces. Caliper types of braces are of value in the maintenance of progress gained by stretching exercises in cases in which there are contractures. Foot-drop supports in the form of figure-of-8 straps or spring dropped-foot braces are indicated in cases in which gross distortion of gait may be benefitted or in cases in which weakness of the ankle permits outward rolling of the foot with weight bearing. Occasionally when there is noted weakness of the quadriceps muscle it is helpful to employ locked knee braces to expedite reambulation; these braces are retained only until the strength of the quadriceps has been rebuilt through concurrent resistive exercises.

When there is poor return of function in an upper extremity, the orthostatic pull of the flail arm often is productive of pain in the shoulder. Local physiotherapeutic measures are of help. The use of a supportive sling may become necessary, but this is undesirable because immobilization not only retards return of function but constitutes an additional hazard for the patient.

The use of transcranial diathermy[5] and various electrical currents[6] has not seemed warranted from the reports in the literature. Except for therapeutic exercise, the prolonged and usually empiric use of physiotherapeutic measures is rarely indicated. Too often injudicious use constitutes abuse and effects only a diversion of attention from the full use of intelligently administered therapeutic exercise, which is the specific agent in accomplishing the patient's rehabilitation.

Neostigmine was given to many patients with spasticity; the results obtained were inconsistent. In some cases it appears to provide relief of pain, and therefore it is worthy of trial.

Retraining in speech has been of value to aphasic patients. Ideally this should be done by a speech therapist. However it has proved satisfactory to have the program carried on by volunteer hospital workers under the direction and supervision of a therapist, an arrangement necessitated by the local shortage of trained speech therapists.

SUMMARY

1. Twenty-eight patients with hemiplegia were subjected to an intensive program of reconditioning and rehabilitation. Eighteen of these patients had become chronically incapacitated since their cerebrovascular accidents, which had occurred on an average of thirteen and a half months prior to initiation of rehabilitation. The illness in the remaining 10 patients was of relatively recent onset, since they had sustained their cerebrovascular accidents on an average of 5.4 weeks and not longer than eight weeks prior to the start of rehabilitation.
2. In 66 per cent of the chronic cases reambulation was accomplished after an average period of one hundred and eighteen and a half days. Improvement had occurred in an additional 17 per cent. In the remaining 17 per cent no benefits were obtained because of mental deterioration and emotional instability of a degree which precluded adequate cooperation.
3. In 90 per cent of the fresh cases reambulation was accomplished after an average period of 67.1 days. Improvement occurred in the remaining 10 per cent. Among this group there were no failures.

CONCLUSION

The early, intensive and intelligent use of physical medicine, with emphasis on therapeutic reconditioning exercises, assures a potentially good prognosis in the rehabilitation of patients with uncomplicated hemiplegia.

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[5] Martucci, A. A.; Hadden, S. B., and McGlone, B.: Treatment of Hemiplegia, Arch. Phys. Therap. **15**: 734-738, 1934. Wolf, H. F.: Treatment of Old and Fresh Cases of Hemiplegia and Poliomyelitis by Physical Therapy, M. Rec. **153**: 263-265, 1941.

[6] Beckman.[1c] Bierman.[1b] Leavy.[1b]

The Red Cells are Non-Conductors.—The erythrocyte constitutes an almost perfect non-conductor of electrical current, in which characteristic it is almost unique among tissues. Stewart, Oker-Blom. Wilson and others have utilized this characteristic to make possible the determination of the hematocrit and mean cell volume by electrical techniques—Hirsch, Fred G.; Wood, Lloyd A.; Ballard, William C.; Frey, Constance, and Wright, Irving S., from an address given April 29 at the Clinical Research Meeting of the New York Academy of Medicine.

REVASCULARIZATION OF HEART BY GRAFT OF SYSTEMIC ARTERY INTO CORONARY SINUS

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The first experiments to improve the arterial circulation to the heart were carried out by one of us (Claude S. Beck) in 1932. At that time the idea of improving coronary circulation by operative methods was a radical departure from established medical thought. A serious study of this subject was undertaken and several thousand operations were done on dogs during the next ten years. The results of these studies cannot be given here, but a general statement can be made to the effect that the circulation to the heart was improved by operative methods.[1] The degree of benefit produced by operation was measured by mortality after ligation of a major coronary artery in an operative group as compared to that in a normal control group. The size of the infarct following ligation of a coronary artery was also an index of benefit. That the heart was protected by operative methods was shown by a reduction in mortality of 50 per cent after ligation of a major coronary artery. Also the infarct was smaller in the operative group than in the control group. In some specimens an infarct did not develop after the descending ramus of the left coronary artery was ligated. In a normal heart an infarct always developed after ligation of this artery provided the animal survived the ligation. Thirty-seven patients with severe coronary artery disease were operated on. The results obtained after operation were beneficial. The clinical results corresponded with the results obtained in the experimental studies.[2]

In this work revascularization of the heart was produced in two ways. One was by the production of inflammation on the surface of the heart which in time led to the development of anastomoses between coronary arteries. These intercoronary communications brought about a more equitable distribution of blood in the myocardium and aided in the prevention of trigger zones in the heart which so frequently are responsible for ventricular fibrillation and death. The second method for improving blood supply was by grafting vascularized tissues on the heart with the expecta-

From the Department of Surgery, Western Reserve University, and the University Hospitals. This work was aided by grant R. G. 399 of the National Institute of Health, United States Public Health Service.

[1] (a) Beck, C. S., and Tichy, V. R.: Production of Collateral Circulation to the Heart; Experimental Study, Am. Heart J. 10: 849 (Oct.) 1935. (b) Beck, C. S.: Principles Underlying the Operative Approach to the Treatment of Myocardial Ischemia, Ann. Surg. *118*: 788 (Nov.) 1943. (c) Stanton, E. J.; Schildt, P., and Beck, C. S.: The Effect of Abrasion of the Surface of the Heart upon Intercoronary Communications, Am. Heart J. 22: 529 (Oct.) 1941. (d) Schildt, P.; Stanton, E. and Beck, C. S.: Communications Between the Coronary Arteries Produced by the Application of Inflammatory Agents to the Surface of the Heart, Ann. Surg. 118: 34 (July) 1943.

[2] Feil, H.: Clinical Appraisal of the Beck Operation, Ann. Surg. *118: 807 (Nov.) 1943.*

tion that blood vessels would grow across from the graft to the heart.

Further application of this work would have been carried out on patients between the years 1942 and 1945 had it not been for the war. During this period, however, a new approach to the problem of revascularization of the heart was beginning to come into existence. This development is the subject of this report.

In 1937 Gross, Blum and Silverman[3] reported an important research on the coronary sinus in dogs. These authors ligated or partially occluded the sinus and found that blood escaped from the heart into the four chambers of the heart. In their hands the mortality following this ligation was 42 per cent. They found that ligation of the sinus produced extensive and abundant dilatation of the intramyocardial collateral channels. Ligation of the sinus was advocated by them as a method of treatment for occlusion of a coronary artery. Physiologic studies were carried out on the sinus by several investigators[4] and the conclusions in general were less favorable than those of Gross and his associates concerning ligation of the sinus for coronary artery disease. Gregg and Dewald found that the pressure in the coronary sinus rose immediately after ligation to the level of aortic pressure. They found the contour and time relations of the venous pressure curves to resemble closely the curves obtained from the coronary artery. Thornton and Gregg studied the problem after the coronary sinus had been occluded thirty days. They found that the pressure in the sinus had practically returned to normal levels. No doubt the channels within the myocardium opened so that blood could escape more readily into the cavities of the heart.

In 1941 Beck and Mako[5] repeated the experiments of Gross, Blum and Silverman. They reduced the mortality of occlusion of the coronary sinus to about 2 per cent and found that occlusion of the sinus had some beneficial effect against occlusion of the descending ramus of the left coronary artery. They did not believe the benefit was great enough for application to patients.

While this study was in progress a query was made in our research laboratory to one of us (C.S.B.) by J. T. Roberts concerning the possibility of making an arteriovenous fistula in the heart. In 1943 Roberts, Browne and Roberts[6] reported on 14 dogs in which arterial blood was brought to the myocardium by a glass cannula connecting the coronary sinus with the brachiocephalic, subclavian or innominate artery. The coronary vein became distended, pulsatile and arterial in color. These dogs survived under conditions of acute experiments from 10 minutes to 26 hours even after ligation of coronary arteries. These authors stated that examination of myocardium revealed a complete injection of the capillaries after dye was injected into the coronary sinus.

In 1945 Blalock and Taussig[7] reported on the treatment of the tetralogy of Fallot by anastomosis of subclavian artery to pulmonary artery. Independently Gross[8] and Crafoord[9] resected a segment of aorta for coarctation and Clagett[10] transplanted subclavian artery into aorta beyond the constricted segment of aorta. Fauteux[11] reported on his operation for sclerosis of the coronary arteries in 15 patients. This operation involved ligation of the magna cordis vein and Fauteux showed that the human heart could tolerate occlusion of this vein. An additional aid in our work was the "vitallium" cannula of Blakemore and Lord.[12] Although this cannula was not successful in our work, it served a purpose in getting us started. The clamp devised by Potts, Smith and Gibson[13] for anastomosis between aorta and pulmonary artery is being used by us to graft a new branch from aorta to coronary sinus. These advances in surgery--and no doubt there are others that have not been mentioned—have contributed their part to the work reported here.

TECHNICAL DEVELOPMENT OF THE OPERATION

This study was begun Feb. 6, 1946. During the following two years approximately seven hundred operations were done on 350 dogs. By April 20 the first patent anastomosis was obtained after operating on 67 dogs, but this anastomosis, like many others that followed, became occluded by formation of thrombus later on. Eighteen months were spent on the project before we had any definite evidence that the anastomosis was beneficial, and it was almost two years before the first patient was operated on.[14]

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[3] Gross, L.; Blum, L., and Silverman, G.: Experimental Attempts to Increase Blood Supply to the Dog's Heart by Means of Coronary Sinus Occlusion, J. Exper.Med. 65: 91 (Jan.) 1937.

[4] Katz, L. N.; Jochim, K., and Bohning, A.: Effect of Extravascular Support of Ventricles on Flow in Coronary Vessels, Am. J. Physiol. 122: 236 (April) 1938. Gregg, D. E., and Dewald, D.: Immediate Effects of the Occlusion of the Coronary Veins on Collateral Blood Flow in the Coronary Arteries, ibid. 124: 435 (Nov.) 1938; Immediate Effects of Coronary Sinus Ligation on Dynamics of Coronary Circulation, Proc. Soc. Exper. Biol. & Med. 39: 202 (Oct.) 1938. Thornton, J. J., and Gregg, D. E.: Effect of Chronic Cardiac Venous Occlusion on Coronary Arterial and Cardiac Venous Hemodynamics, Am. J. Physiol. 128: 179 (Dec.) 1939. Thornton, J. J.; Gregg, D. E., and Mautz, F. R.: Magnitude, Adequacy and Source of Collateral Blood Flow and Pressure in Chronically Occluded Coronary Arteries, ibid. 127: 161 (Aug.) 1939.

[5] Beck, C. S., and Mako, A. E.: Venous Stasis in the Coronary Circulation; Experimental Study, Am. Heart J. 21: 767 (June) 1941.

[6] Roberts, J. T.; Browne, H. S., and Roberts, G.: Nourishment of the Myocardium by way of the Coronary Veins, Federation Proc. 2: 90 (March 16) 1943.

[7] Blalock, A., and Taussig, H. B.: Surgical Treatment of Malformations of the Heart in Which There Is Pulmonary Stenosis or Pulmonary Atresia, J. A. M. A. 128: 189 (May 19) 1945.

[8] Gross, R. E., and Hufnagel, C. A.: Coarctation of the Aorta: Experimental Studies Regarding Its Surgical Correction, New England J. Med. 233: 287 (Sept. 6) 1945.

[9] Crafoord, C., and Nylin, G.: Congenital Coarctation of Aorta and Its Surgical Treatment, J. Thoracic Surg. 14: 347 (Oct.) 1945

[10] Clagett, O.: Coarctation of the Aorta: Surgical Aspects, Proc. Staff Meet., Mayo Clin. 22 131 (April 2) 1947.

[11] Fauteux, M.: Surgical Treatment of Angina Pectoris:, Experience with Ligation of the Great Cardiac Veins and Pericoronary Neurectomy, Ann. Surg. 124: 1041 (Dec.) 1946.

[12] Blakemore, A. H., and Lord, J. W., Jr.: Nonsuture Method of Blood Vessel Anastomosis: Experimental and Clinical Study, J. A. M. A. 127: 685 (March 24) 1945; Ann. Surg. 121: 435 (April) 1945.

[13] Potts, W. J., Smith, S., and Gibson, S.: Anastomosis of Aorta to Pulmonary Artery: Certain Types in Congenital Heart Disease. J. A. M. A. 132: 627 (Nov. 16) 1946.

Repeated operations were necessary. This work required strong, vigorous dogs free of diseases. Distemper, pneumonia, animal tics and malnutrition were conditions that retarded progress in this research. Indeed, it was not possible to make a test of benefit for the operation during the first year of our work because of these conditions. In the second year of this work a grant from the United States Public Health Service made it possible to work under satisfactory conditions. We found that the bull terrier was the best breed of dog for this work. The operative work required the best in asepsis, mechanical respiration and oxygenation. Three to five hours of anesthesia were required for the anastomosis. We lost a number of dogs because of imperfect absorption of carbon dioxide in a closed system of anesthesia.

Can the Coronary Sinus and its Tributaries Tolerate Arterial Pressure?--During the first year of the work we had about 20 instances of hemorrhage into myocardium. This complication occurred after the sinus was ligated and also after anastomosis was made to the virginal sinus. In the second year of the work this complication did not occur. This complication was due to the fact that we were using sick dogs in poor nutritional condition. This complication disappeared after diseases were stamped out of our kennel and after we began to feed the dogs meat and liver. In healthy dogs we can say that the coronary sinus and its tributaries can tolerate arterial pressure. More recently we used heparin and "dicumarol" during and after operation. We obtained 1 specimen in which there was hemorrhage in the wall of the left ventricle. The hemorrhage was not pronounced and probably was not the cause of death in that experiment. It would appear that the possibility of hemorrhage exists when these agents are used.

The Coronary Sinus in the Dog.--The coronary sinus varied somewhat in different dogs. In many animals the sinus was delicate and for surgical manipulation was like wet tissue paper. In our hands, after two years of intensive work, anastomosis could not be done on the virginal sinus when it was so delicate and thin. In many instances, however, anastomosis could be done satisfactorily. Anastomosis always required intensive concentration. The tributaries to the sinus present a problem. There were two types of tributaries to the sinus. One was the type of relatively large vein which lay beneath epicardium and entered the inferior aspect of the sinus. The other type was a vein of hairlike size that could scarcely be seen that entered the floor of the sinus. The circumflex coronary artery was inferior to the sinus; right auricular wall was superior to the sinus; auriculoventricular node was near the ostium of the sinus. The approach to the sinus was a problem. We approached it from the right side of the chest for most of our experiments, but more recently we have approached it from the left side.

We observed that certain changes took place in the sinus after the sinus was ligated. Ten days to several weeks after ligation the distention of sinus was less pronounced. The wall of the sinus had become thicker so that the sinus could be manipulated with a greater degree of safety. We used preliminary ligation of the sinus as an aid to anastomosis. The optimum interval between ligation of sinus and anastomosis of artery to sinus was ten days to two weeks. We had about fifty failures because the interval was longer. The sinus had become small and the wall rather fibrotic. Ligation of sinus became the first step in the operation in most of our work. Ligation of sinus during the first year of the work had a mortality of about 15 per cent. In the second year of the work the sinus was ligated in 78 consecutive dogs without a death. This difference in mortality was due to the health of the dogs and showed how scientific observations could be influenced by such extraneous factors. The fact that the sinus was ligated in 78 dogs without mortality indicated that the sinus and its tributaries could tolerate increased pressure in the venous system.

The Coronary Sinus in Man.--The sinus in man varied considerably from the sinus in the dog. In man the sinus was a larger and stronger structure. The diameter was almost 1 cm. The wall was thicker. It could be much more readily manipulated. The hairlike tributaries were not found. The sinus was not so deeply buried in myocardium. It could be dissected away from the myocardium for about 1 cm., and this dissection appeared to be safe.

Concerning the Artery for Anastomosis in the Dog.--Attempts to use various arteries were made. The internal mammary, the brachiocephalic and the subclavian arteries were either too small or too short for anastomosis to the sinus. The only artery that could be used was the common carotid artery. This artery could be taken almost always without cerebral complications provided it were taken below the bifurcation. Convulsions and hemiplegia frequently occurred if ligation were done above the bifurcation of the artery. The carotid artery was dissected down to its origin from the brachiocephalic artery. It was turned down from the neck in a direction posterior and lateral to the brachiocephalic artery. A special instrument was made to carry it down from the neck to the heart. The entire dissection was made from the neck. The wound in the neck was closed before the chest was opened. When the chest was opened the instrument was located by the finger and brought out with the artery. For anastomosis the artery was cut on the bias in order to increase the size of the stoma.

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[14] Beck, C. S.; Revascularization of Heart, progress report, Sept. 13, 1947, Surgery Study Section, United States Public Health Service. (This report covered our work from Feb. 6, 1946 to Sept. 1947).

Concerning the Artery for Anastomosis in Man.—The carotid artery is an important artery in man. Ligation may be followed by cerebral complications. This artery is larger than the normal coronary artery and therefore was larger than necessary for our operation. Its use would necessitate the removal of a piece of clavicle to get exposure of carotid artery where it comes off the aorta. The dissection in the neck would add considerably to the magnitude of the operation. For these reasons we did not care to use this artery. However, there was no other artery that could be used. The internal mammary artery was too small; the subclavian artery and the vertebral artery were not accessible. There was no artery in the abdomen that could be used.

This was a serious problem. Fortunately we were able to solve it. The solution was to make a new branch from the aorta. We used a segment of artery in most of our experiments. A segment of vein might prove to be satisfactory. The length or graft necessary in the dog was 5 cm. For the anastomosis in man the distal end of the brachial artery seems to be of proper size. We believe that this segment of artery can be taken without seriously crippling the hand.

The Anastomosis to the Coronary Sinus in the Dog.—The epicardium was incised for about 1 cm. just above and below the sinus as it entered the atrium. Gentle dissection allowed the sinus to stand out. A special curved ligature carrier was placed between sinus and coronary artery and directed under sinus coming out, in or through auricular wall just above the sinus. The carrier was introduced at two points about 1 cm. apart. The sinus must not be punctured or injured. The first passage of the instrument carried a double piece of silk. The silk was cut and disengaged from the carrier. One piece was used for a ligature. The other piece of silk, which was long, was placed in the carrier and passed between sinus and coronary artery, under sinus and emerging through or in auricular wall superior to sinus. The silk after it emerged was cut. We than had a mattress suture under 1 cm. of sinus together with a piece of silk on each end of the segment. After the mattress suture was tied and after each piece of silk was tied we had the segment of sinus isolated so that there was no blood flowing through it. Two arterial sutures were placed in the wall of the sinus. These were gently held up and sinus wall was cut for about 5 mm. The sinus was washed with a solution of heparin. The artery or vein was brought into position. Four cardinal sutures were placed between sinus and graft, one on each end of the open sinus and one midway on each side. These sutures were everting mattress sutures. They were tied. The anastomosis was completed by a continuous everting suture. The mattress suture was removed as was also one suture occluding the sinus. The occluding suture on sinus between anastomosis and entrance into right auricle was left as an occluding suture (fig. 1).

The Anastomosis of Arterial Graft to Aorta.—We used a segment of carotid artery in the dog because it was more readily available than any other artery large enough for anastomosis. The aorta was dissected free. Two intercostal arteries were ligated and cut. Care was taken to avoid injury to thoracic duct. The Potts, Smith, Gibson clamp was applied to aorta. This clamp made it possible to open aorta and at the same time allow blood to flow through aorta. The aorta was incised for a distance of 5 mm. The incision was made above the compressed margin of the aorta. The graft was cut on the bias. A horizontal, everting, continuous mattress suture was used. The suture was begun at one end. Each suture was properly spaced (fig. 2). Care was taken that the needle did not penetrate aorta twice at one point, as this could lead to hemorrhage. The anastomosis of free arterial graft to aorta was done before the anastomosis between artery and coronary sinus was carried out.

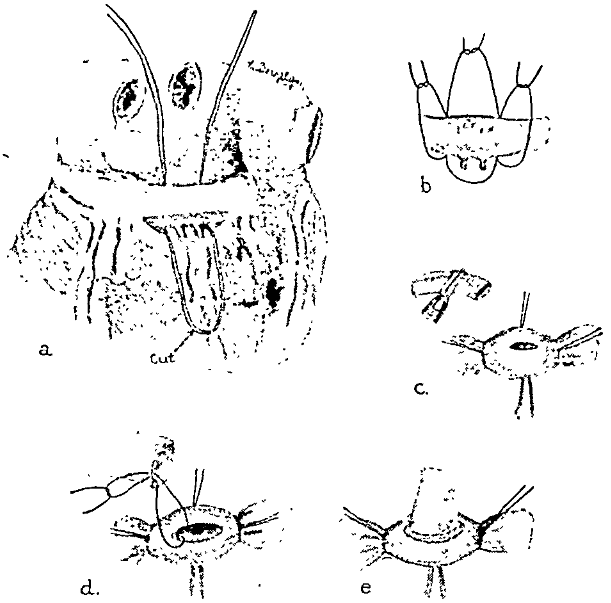

Fig. 1-Anastomosis in the dog. *A*, dissection of sinus. *B*, isolation of segment of sinus. *C*, sinus opened. *D*, one cardinal suture placed between arterial graft and sinus. Sutures are everting of mattress type. *E*, anastomosis is complete. Hemostatic ligation and suture have been removed.

OBSERVATIONS AFTER ANASTOMOSIS

Concerning the Heart.—When the transplanted artery was opened after anastomosis had been made, several observations were noted concerning effect on the heart. The sinus became distended and frequently showed pulsation. The veins became pink. The heart seemed to improve in color. The heart was firmer to the touch. The beat remained regular. It was noted by each of us that the heart seemed to take a more forceful beat after the transplant was opened. A heart which was not doing well during anastomosis did better after the anastomosis was opened. Other factors such as dislocation of the heart might have been responsible for this. Dislocation was released after transplantation was finished. Electrocardiograms did not show any change at the time the anastomosis was opened or later on. The heart did not dilate. Hypertrophy did not develop in those experiments in which sinus was totally occluded between anastomosis and auricle. Cardiac failure did not develop in any experiment.

Number of Patent Anastomoses.—"Vitallium" Cannulas: During the first nine months of the work we used "vitallium" cannulas for the anastomosis. The artery was placed through the cannula, cuffed back over the cannula and held in position by a ligature. The cannula and artery were introduced into the sinus and held in position by a ligature around the sinus, artery and cannula. Our records showed that there were fifteen patent anastomoses when the dog died or when the dog was killed. The time interval was up to sixty-nine days in 1, over a month in 5 and over a week in 12.

Fibrosis occurred in the segment of artery within the cannula. This process seemed to be progressive. Animals with patent anastomosis during the early postoperative period later on showed occlusion. This method of anastomosis was given up.

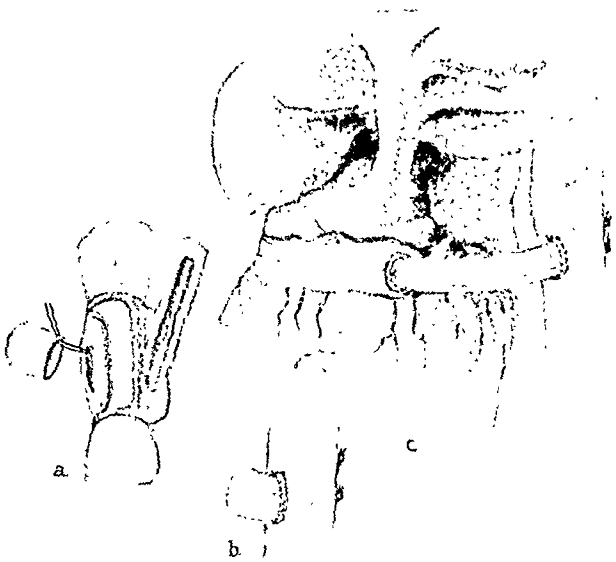

Fig. 2. Anastomosis in the dog. *A*, anastomosis between aorta and arterial graft; Potts, Smith, Gibson clamp on aorta; aorta opened; one everting suture in place. *B*, anastomosis between arterial graft and aorta completed. *C*, new branch from aorta to coronary sinus.

Suture Technic: The "vitallium" cannula served a purpose in getting us started on the research at a time when we did not believe the suture technic was possible. Our records showed that there were thirty or more patent anastomoses with the suture method. The longest period between anastomosis and the time when the dog was killed for the specimen was four and one-half months. Thrombosis and occlusion occurred in many specimens. We believe that this was related to trauma of the operation. As a rule we could predict at the time of operation whether the anastomosis would remain patent. Anticoagulant agents were not used for this work. More recently they have been used.

Health of Dog after Anastomosis.--As a rule the postoperative period was uneventful after anastomosis was done. The first dogs to go through the operation were watched with great interest to see how the heart would stand the increased circulation. The dogs tolerated the anastomosis well. They were up as usual the following day and, after several days, they were as active as other dogs. Circulatory failure was not observed in any experiment. Some of the dogs had murmurs; others did not. The electrocardiogram was essentially normal.

MEASUREMENTS OF BENEFIT

These were made by determination of mortality following ligation of descending ramus of left coronary artery at its origin in one step and also by determination of size of infarct following this ligation.

Mortality.—The following operations were done in sequence. 1. The descending ramus of the left coronary artery was dissected at its origin and a piece of silk was placed around the artery, but it was not tied and the artery was not constricted. This piece of silk was an aid to ligation of the artery later on. 2. Complete or partial ligation of the coronary sinus was done one or two weeks after the first operation. 3. Ten to fourteen days after ligation of the sinus, anastomosis between the carotid artery and the coronary sinus was carried out. 4. Two weeks later the coronary artery was ligated as referred to in 1. The silk thread helped in the isolation and ligation of the artery. It was completely occluded. After ligation of the artery the dogs were kept for a period which varied from sixteen days to four and one-half months. Two series of dogs of 10 each are presented. In one series the anastomosis was patent. In the other series the anastomosis was completely occluded by thrombus. In the control series with blocked-off anastomosis death occurred in 7 and recovery in 3. Four died within one hour after ligation of the artery; 2 died within the first twelve hours and 1 died forty-eight hours after ligation. In 50 normal dogs with this artery ligated the mortality was 70 per cent[1d] and in 57 dogs with ligation of the sinus at one operation and ligation of the artery at a subsequent operation the mortality was 61 per cent.[5] In the series with patent anastomosis the entire group of 10 survived the immediate effect of the ligation; 1 died eight days later; 1 died thirteen days later; 8 recovered.

Infarcts.--The infarcts were observed. The 3 specimens of the control group showed destruction of myocardium by observation of the surface of the heart. None of the patent group showed such evidence of destruction on the surface of the heart. The specimens were cut. Each of the control specimens showed extensive destruction of myocardium. None of the group with patent anastomosis showed extensive destruction of myocardium. In 4 specimens there was no infarct. In the other 6 specimens including the 2 that died the destruction was limited to scattered areas of a few square millimeters. In no specimen of the group was there extensive destruction involving entire thickness of myocardium. These results showed that the anastomosis was beneficial. They showed that the degree of benefit was definite. The anastomosis made it possible to ligate a major coronary artery with no immediate mortality and with little or no destruction of heart muscle.

INJECTION OF SPECIMENS

A considerable quantity of blood may pass through an arteriovenous fistula. Specimens of hearts were examined in reference to this possibility. We examined venous tributaries in the normal heart, in the heart after occlusion of sinus and also in the heart after anastomosis had been made. It was obvious that adjustments had to occur after the sinus was ligated. Blood escaped from the heart through other channels. There were two exits for this escape of blood. One was through the intramyocardial channels that empty into the four chambers of the heart. The other was a system of superficial veins that drain blood from the coronary sinus system into the right atrium. In the normal heart of the dog these superficial veins were found both anteriorly and posteriorly over the right ventricle. After occlusion of sinus these veins were usually increased in size and number. After anastomosis these veins were approximately the same as after occlusion of coronary sinus. Twenty-two cleared specimens with patent anastomosis were examined. Arteries and veins were injected in these specimens. In 2 specimens these veins were fairly large and numerous; in 20 specimens these veins were not larger or more numerous than in specimens after occlusion of the sinus.

Our conclusion was that in most specimens the superficial channels draining blood away from the coronary sinus system were of no special significance. The possibility existed, however, that these veins can develop, and in 2 specimens these veins did develop. Should these veins drain off any significant quantity of blood it would be possible for these to reduce the flow through the myocardium and thereby impair physiologic benefit of the operation. If this complication should develop, it would be possible to ligate these veins at the time of anastomosis. In the human heart there were no superficial veins anteriorly, but posteriorly one, or two or three channels were found. These channels will be ligated at the time of anastomosis in the human patient.

It was possible to obtain information on bloodflow in both the superficial channels and also in the intramural channels by injection of blood into the coronary sinus in the normal heart, into the coronary sinus after ligation of the sinus and also into the sinus after anastomosis to an artery had been done. The heart was removed and injection performed immediately. The dog's own heparinized blood was used. The pressure for injection was 120 mm. of mercury.

Normal Heart.—A cannula was placed in the coronary sinus and one was also placed in the left common coronary artery. When blood was injected into the sinus an average figure of 9 cc. per minute was recovered from the coronary artery. No blood was obtained from the right coronary artery.

After Occlusion of Coronary Sinus.—The sinus was ligated and several weeks later injection of blood was done as in the normal specimen. The average amount recovered from the artery was 22cc. per minute.

Patent Anastomosis between Carotid Artery and Coronary Sinus.—In 10 specimens the average amount of blood that was injected into the transplanted artery was 60 cc. per minute and the average amount that was recovered from left coronary artery was 6 cc. per minute. The greatest inflow into transplanted artery was 175 cc. per minute. When the injection was reversed the average amount that entered the left coronary artery was 100 cc. per minute and only 1 cc. was recovered from the transplanted artery.

Comment.—It can be stated that there are communications between the venous side of the circulation and the arterial side of the circulation which in the dead specimen allowed blood to flow in a retrograde direction. A larger quantity of retrograde flow was recovered after the sinus had been ligated as compared to figures in the normal heart. After patent anastomosis of the carotid artery to the sinus was made, it is significant that the inflow through transplanted artery to vein was not excessive. The inflow was about the same as the inflow into the coronary artery. This situation does not exist in arteriovenous fistulas in other parts of the body where the pressure on the venous side is comparatively low and large quantities of blood flow through the fistula. In this respect anastomosis of artery to coronary sinus differs from all other arteriovenous fistulas. Because inflow of blood into transplanted artery and inflow into the coronary artery were about the same, it would appear that the resistance to flow in the vascular bed of the myocardium was about the same whether the blood entered by way of the vein or by way of the artery. That blood was not freely siphoned off into the cavities of the heart was, indeed, a favorable condition in terms of application to patients. There appeared to be no wide open fistula effect either within the myocardium or in the superficial veins draining blood directly into the right atrium. Long term experiments may provide different results. These should be done.

Specimens with Patent Anastomosis and Partial Occlusion of Sinus.—It was routine procedure to place a ligature of silk around the sinus at a point between the ostium of the sinus and the anastomosis between the artery and the sinus. If complete occlusion of the sinus were not produced then an arteriovenous fistula would develop into the auricle. This occurred in 8 of our specimens. An opening was found when blood was injected into the transplanted artery. The amount of blood escaping through this opening, a pressure of 120 mm. of mercury being used, was 65, 92, 118 and 225 cc. per minute. In 1 or 2 of the specimens the heart appeared to be questionably enlarged. It is possible to prevent this complication by placing two ligatures around the sinus and dividing the sinus between ligatures. It would appear that a small fistula might have therapeutic value. The increased flow through anastomosis might reduce the possibility of formation of thrombus. It is a point to bear in mind that a temporary fistula might have therapeutic value.

APPLICATION TO PATIENTS WITH SCLEROSIS OF CORONARY ARTERIES

At the end of two years of experimental study we were ready to apply the operation to patients. During the past two years approximately 100 patients with coronary artery disease had come to one of us (C.S.B.) for operation. These patients were advised to wait until this new operation was developed. Recently the names of 8 patients were selected to come into the hospital for study. Of these 8 patients, 2 had died. The first patient of the group who was admitted to the hospital for study had a markedly dilated heart and appeared to be threatened with failure. He was not accepted for operation because the risk appeared to be too great. We believe that a failing heart would be benefited if the anastomosis could be done. We believe that the heart will improve when arterial blood is turned into the heart. Irreversible damage existing in the heart will remain as such and no doubt will influence the clinical result after operation. The undamaged muscle, however, should be given restoration of function by the operation. The question arises, therefore, whether patients who have signs of failure should be operated on. It would appear to us that any salvage out of this group would be on the credit side even though the mortality of operation reached a figure as high as 50 per cent. If this group of patients showing circulatory failure is accepted for operation it would appear reasonable to keep this group separate for statistical purposes. We believe that there should be some salvage in this group and the only way to find out is to operate on a number of them.

Operation on Patient Jan. 27, 1948.—The operation was carried out on a patient who had had severe coronary disease over a long period of time. He was almost incapacitated. A graft of brachial artery was used between the aorta and the coronary sinus. The segment of brachial artery had some atheromatous deposit in it. The anastomosis was done as described in the experimental work. The patient tolerated the procedure and the results will be reported at a future date.

CONCLUSIONS

A systemic artery or a new branch from the aorta was grafted into the coronary sinus in dogs. The technical aspects of this operation were developed. This anastomosis was beneficial. The degree of benefit was marked. After this anastomosis was done it was possible to ligate the descending ramus of the left coronary artery at its origin in one step with no immediate mortality and with little or no destruction of heart muscle.

After anastomosis was made between artery and sinus, the specimens did not give significant evidence of excessive drainage of blood by way of intramural channels or by way of superficial veins that empty into the right antrium. Additional evidence on drainage channels in long term experiments is desirable.

This operation was applied to 1 patient who had severe coronary artery disease. A new branch from the aorta was made with a segment of brachial artery. The patient tolerated the operation. The clinical results will be reported later.

PSYCHOTHERAPY IN EVERYDAY PRACTICE

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I speak as a practitioner of medicine and not as a psychiatrist, and that is a different matter. When a patient comes to the psychiatrist he comes prepared to discuss his emotional problems, but when he consults a general physician he is almost always looking for a *physical cause for his trouble.*

But in at least one third of all the patients who consult a physician no definite bodily disease can be found to account for the illness, and in another one third of all patients the symptoms are not explained by, or are out of proportion to, any organic disease that can be discovered. In this group of patients are many in whom there seems to be a definite relationship between the emotional life and the physical disease; in other words, the emotional factor apparently plays an important part in causing the disorder. This is the group to which the term psychosomatic affection is often applied.[1]

While psychosomatic is a new term, it describes an approach to medicine as old as the art of healing itself. It is not a new specialty but rather a point of view which applies to all aspects of medicine and surgery. It connotes the simultaneous application of physiologic and psychologic technics in the study of illness. It does not mean to study the soma less; it only means to study the psyche more. It is not a new discovery, but rather a reaffirmation of the ancient principle that the mind and the body are interactive and interdependent, a principle that has always guided the intelligent general practitioner. Indeed, the traditional old family doctor often was an excellent psychosomatic physician, although he never thought of himself as such. He and his patients usually were intimate friends, and he was familiar with their social situation, as well as with their psychologic and physical peculiarities. He was well aware that these factors were related to illness. As a science, psychosomatic medicine aims at discovering the precise nature of the relationship between the emotional life and bodily illness.

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[1] The term psychosomatic as used in this paper indicates: (1) a method of approach to general medical problems—the simultaneous application of physiologic [illegible]s to the study of illness in an effort to make a [illegible] in preparation for comprehensive medical care; [illegible] sense, a disorder which can be understood only when psychologic as well as physiologic factors are taken into consideration (Halliday [2])

It is the special point of this paper that psychosomatic technics of diagnosis and treatment must become an integral part of the practice of medicine in order to fulfil their promise and meet the challenge of present day medical problems. The enormous number of psychoneurotic and psychosomatic problems turned up by the Selective Service process and encountered in military medicine indicates where the emphasis must be placed in the practice of medicine. World War I established psychiatry on a firm scientific basis and World War II has seen its more complete integration into general medicine, in other words, psychosomatic medicine. When that integration is accomplished there will be little need for the term psychosomatic; good medicine will be psychosomatic medicine.

PSYCHOSOMATIC DIAGNOSIS

When a person gets sick he is sick all over; that is, the body and mind are one, and he gets sick for a variety of reasons, physical and psychic. In other words, it is usually not one thing that determines illness; there are multiple factors acting together. In our approach to illness Halliday[2] stated that we must think: 1. What kind of a person are we dealing with (inherited and acquired characteristics, physical and psychologic)? 2. What has he met (germs, allergens or emotionally disturbing events)? 3. What has happened (the physiologic mechanism or pathogenesis of the disorder)? For example, allergic responses occur when a prepared organism, possessing certain physical and psychologic characteristics, meets certain elements, physiologic and psychologic. In some allergic disorders a single preponderant factor may be largely responsible, as for example in pollen hay fever. In others, such as asthma, there are frequently multiple interrelated factors, allergens and emotional disturbances, which act in a complementary fashion to produce the disorder.

Just as I insist on this unity regarding the nature of illness—the body and mind are one—so do I urge that the means of investigation are two—physical and psychologic—and their simultaneous application represents psychosomatic diagnosis. Moreover, they are applied simultaneously, although their application is often unconscious and unscientific. We physicians in our usual approach to the patient, using the orthodox methods of medical history, physical examination and laboratory studies, at the same time make many intuitive observations about the unconscious mental processes of the patient as exhibited in his language and behavior. What is here suggested is that order be brought into this intuitive process. We now have enough understanding so that we can begin to forge a scientific instrument in the exploration of unconscious mental processes (Kubie[3]). In other words, we are trying to make the rules regarding psychologic exploration as exact as the rules of physical investigation.

Rather than be satisfied with loose terminology—neurogenic factors, emotional upsets, physical and mental fatigue, emotional stress and strain—we must make an effort to define the specific emotional problem and relate it to the total personality makeup of the patient.

Just as we try to establish certain postulates for an allergic problem, hay fever for example, (1) heredity, (2) seasonal history, (3) skin tests, (4) antibodies, (5) induction of an attack with pollen and (6) hyposensitization or avoidance of offending substance in controlling attacks, so in the psychosomatic problem we try to establish (1) a family history (heredity and pseudoheredity) that suggests a background for psychologic difficulties; (2) evidences for a childhood neurosis; (3) sensitivity to specific emotional factors (temporal relationship of present illness and emotionally disturbing event), especially at epochal or crucial life periods (puberty, marriage, childbirth, climacteric, etc.); (4) a specific personality structure (other evidence of neurosis or character disturbance); (5) demonstration of specific behavior on taking the history (artificial exposure to a conflict situation); (6) hyposensitization by psychotherapy or the avoidance of the provocative situation.

We will not be able to establish all of these postulates in every case. For example, evidence for a childhood neurosis will often be missing—neither the patient nor his family can recall disturbed behavior or bodily dysfunction.

So far as allergy is concerned the fact that the removal of an allergen or a hyposensitization process "cures" the patient proves only that one factor has been removed and the morbid chain of events interrupted. Exactly the same reasoning can be applied to psychologic factors.

Heredity is often held responsible for illness that arises from the environment. This is an important consideration to which too little reference has been made. Children identify themselves with their parents and unconsciously imitate them, and thus patterns of behavior are laid down (which include illness as an aspect of behavior) so early in life that we often attribute a disorder to heredity when in fact it was acquired. This of course is an involved question, and I presume that the final answer can hardly be hoped for, that is, to separate constitutional and environmental factors with precision. But unconscious identification with a sick parent or other member of the household in early childhood often is the basis for an illness later in life which we may attribute wholly to heredity. When a young child is exposed to a sick parent it often shows the effect in psychosomatic illness in adult life.

Body Language.—Body language is a satisfactory explanation and approach to many medical problems. It has been suggested that the most satisfactory way to deal with tension is by action, the least satisfactory is by thought, and in between is speech. In other words, in all persons with psychosomatic illness there is some impairment of total functioning, and often a great deal of energy is consumed by thought (fantasies). If we can encourage them to get their thinking onto the surface by talking about their problems we can often understand the illness better and at the same time provide some measure of relief. Thus I often say to my patients that they are like engines with the steam up. If the wheels do not go around in productive work and the whistle is not blowing in talking about their troubles then the steam must try to get out somehow and it makes an effort to part their seams. It is a homely explanation which people readily grasp, as they realize that this short circuiting of energy is capable of disturbing their bodily functions. Therefore we can say to patients that if they cannot express their tension by word or action—if they cannot say with their mouths what is disturbing them—then one of their organs will try to say it for them. Thus, the patient with nausea, who has no evidence of organic disease, may be indicating that he cannot "stomach" certain situations; the patient with an itch often "lets things get under his skin." Many additional examples could be

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2. Halliday, J. L.: Principles of Etiology, Brit. J. M. Psychol. **19**: 367, 1943.

3. Kubie, L. S.: Human Constitution in Clinical Medicine, by G. Draper; C. W. Dupertuis, and J. L. Coughey, Jr., book review, Psychoanalyt. Quart. **13**: 501, 1944.

given[4] to show that the patient often expresses his body language in symbolic formulas if we would only listen to him.

Another satisfactory way to get patients to discuss themselves in relation to their illness is to use a case illustration. Repeatedly this is effective when other methods of trying to make patients see the relationship between emotions and illness fail. If the physician can think of an apt case illustration the patient can readily identify himself, and even if there are pronounced divergences the patient will often see a partial application which will encourage him to talk about his personal life. Sometimes he will deny the application only to go on from that point to discuss emotional factors of importance which previously he was unable to think of.

History Taking.—An important element of the doctor-patient relationship enters into the taking of the history. I cannot discuss all of the qualifications of the physician who should interest himself in psychosomatic problems. Here it is only necessary to say that he must be so constituted that he can listen to the patient uncritically. Sympathy for patients suffering from illness of emotional origin is an essential part of the equipment of the physician who would interest himself in psychosomatic problems. If he is unsympathetic it will show in his manner and will discourage the patient from revealing feelings that are essential to an understanding of the problem.

In addition, a physician's ability to use the psychosomatic approach will depend on his knowledge of psychopathology and tissue pathology applied simultaneously. Therefore his human understanding, sensitivity and sympathetic appreciation of emotional factors as a cause of illness, as well as his orientation and experience, are all important in determining his ability to deal with psychosomatic problems.

Experience, of course, is important in history taking, but if one practices medicine for fifty years he will still have to give time to the patient. In other words, there are no short cuts in history taking—while the most experienced persons will quickly grasp the situation, time must be taken because the patient cannot be hurried.

The revered family doctor of the small community utilized his knowledge of his patients' personal lives in evaluating their history. He knew everything that was going on and had a background of understanding gained from personal observation. Now in our elaborate medical institutions, with a lack of knowledge of the patient's background, we overemphasize the so-called scientific aspects of medicine and relegate to the background the social and emotional factors that may enter into illness. As a consequence our methods of history taking have not kept pace with other methods of progress in medical science. Really our history forms and technics are indicative of one of the basic faults in medical knowledge and medical teaching.

The body is still divided into many organs and systems; specialists look on disease from their narrow point of view, and the curriculum is built up by introducing more and more special points of view. As a consequence the comprehensive point of view, which is so necessary to the study of illness as an aspect of behavior, makes little headway. The medical history form which we give to our medical students reflects this organic approach and this age of specialization, and we look in vain throughout a long history for some evidence of the human being who is sick. If patients were allowed to talk more and were examined less it would be a good thing for medicine in general. As one patient who had been through the mill of medical investigation recently remarked, she was suffering from "testitis." Indeed how numerous are the patients who have been examined again and again by means of the roentgen ray, chemical studies and various other expensive and complicated methods, accumulating a sheaf of papers, but with an end result hurtful rather than helpful because the diagnosis was obscured by concentration on a part rather than on the whole.

The majority of persons who consult a general physician wish to find some physical cause for their ailment, and thus fall readily into the system of answering specific questions about physical health and volunteering no information about themselves as persons. Moreover, people look on the physician as an authoritarian figure who will "do something" about their illness and are usually quite unprepared to have "to do something for themselves"—in other words discuss themselves as persons as well as "medical cases." We must look for the person in the patient. I have frequently observed that the patient who insists "that his illness is physical" is apt to be suffering from a disorder of emotional origin, while the patient who is eager to blame it on the psyche often has an organic disease. Many persons, seriously sick with advanced organic disease, seek to delude themselves with the idea that it may be "all mental." This applies especially to the many lay persons who have now read some of the popular writings on psychosomatic medicine.

The introduction of the psychosomatic point of view does not require a different form of history taking; it only requires an awareness of the role that the emotions play in illness and hence more emphasis on certain aspects of history taking. Thus the history need not differ in form but it must differ in substance. In accordance with what has been said more attention will be paid to the behavior of the patient and to the actual words that he uses in describing his complaints as well as the asides and apparent irrelevancies that so often give important clues to the emotional factor. Other fundamental considerations are to give the patient time, allowing him to talk with as few interruptions as possible. Avoid extensive notetaking, so that the patient may feel that you are more interested in him as a person than in the setting down of the history. Show interest and sympathy for what the patient sometimes regards as trivial or silly and pay close attention to the chronologic development of the life history, with special emphasis on the various factors in the childhood period that may have influenced the development of the personality. Special attention should be given to puberty and adolescence with their frequent emotional problems and to the epochs and crucial periods in life when psychosomatic disturbances are apt to arise. Inquire into the health of the spouse; neurotics have a way of attracting one another. Try particularly to obtain a more complete picture of the family background.

Chronologic Development of Life History.—There are two main approaches to the study of the patient with suspected psychosomatic disorder: a cross section study of his personality as he appears at the time of the interview and a longitudinal survey of his life from family background and early infancy to the present time. The first approach, the cross section point of view, is combined with the story of the present illness. It is the traditional approach of the physician to his patient, and the only requirement so far as the psychosomatic history is concerned is to develop the social and psychologic aspects in order to see if there is a relationship between the life situation and the medical illness.

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[4] Weiss, E., and English, O. S.: Psychosomatic Medicine, Philadelphia, W. B. Saunders Company, 1943, p. 10.

The cross section approach tries to relate the present illness and the precipitating emotional factor. The longitudinal study relates personality development and the past medical history. It gives a better idea of the personality structure and psychopathology because it shows the background and the development of the personality. One technic does not exclude the other. On the contrary, the data derived are complementary and help to make up a definitive psychosomatic diagnosis.

Definitive Diagnosis.—Just as in a consideration of somatic disease it is necessary to make a complete diagnosis before we can hope to apply scientific treatment, so it is equally necessary in psychosomatic medicine. Hence, just as in general medical teaching, we have always emphasized etiologic, anatomic and functional diagnosis, so in psychologic medicine, as pointed out by Levine,[5] it is necessary to make a clinical, dynamic and genetic diagnosis before we can stand on safe ground in regard to psychotherapy.

The clinical diagnosis in psychosomatic medicine refers to the structural and physiologic deviations as well as to the underlying or associated psychologic disturbance. For example, in the so-called organ neurosis, we should like to know whether we are dealing with a mild personality disorder such as hysteria or a severe personality disorder such as hypochondriasis. It is important, in a functional gastrointestinal complaint, to know whether the symptoms are on the basis of conversion hysteria or a part of the clinical picture of depression in which the mood disturbance is overshadowed by the somatic complaints. When one deals with depression there is often the threat of suicide.

Dynamic diagnosis refers to the meaning and purpose of the symptoms or behavior in terms of the particular personality and its structure. When this is coupled with the genetic diagnosis, which is derived from the longitudinal survey of the individual life history, we are then in a position to plan comprehensive medical care.

PSYCHOTHERAPY

Patients do not have to be told, "You are now undergoing psychotherapy." What we must do can be done in the usual relationship between physician and patient. 1. After a medical history, which takes account of personal factors as well as "medical facts," we should make a complete physical examination and such laboratory tests as are necessary to exclude physical disease or to establish the precise nature of the organic problem and the amount of disability which it in itself is capable of causing. 2. When the patient has been assured that there is no physical disease or that disability is out of proportion to the disease, it is usually easy by examples of psychic causes for such physiologic disturbances as blushing, gooseflesh, palpitation and diarrhea to make the patient understand that a disturbance in his emotional life may be responsible for the symptoms. 3. Continue to look for the person in the patient. The more one can persuade such a patient to talk about "his other troubles" the sooner does one come to an understanding of the "present troubles." The greater the success in switching the conversation from symptoms to personal affairs, the sooner does one come into possession of the real problem disturbing the patient. Encourage him to talk about himself as a person rather than as a medical case.

Usually one or more of three special fears are uppermost in the minds of such patients. One of the most common is fear of cancer; cancerphobia. A great many patients think they have cancer, and indeed most women who consult physicians will have the idea at some time. They do not always express it; in fact, they rarely directly express their fear of cancer. They often disguise it by a complaint about a lump, a swelling or a curious sensation in the abdomen or breast, and when they are assured at the end of a complete physical examination that they are free from organic disease, they heave a sigh of relief and say, "Oh, I am so glad because I thought I might have a cancer." With all of the propaganda for the early detection of cancer these fears are exaggerated, and I presume it is the price that we must pay for instructing people about cancer. I am not, of course, advising against such instruction; it is only that we must realize that we add to the apprehension of many patients by our emphasis on the early detection of cancer.

Another common fear is of heart disease. When pain in the precordial region as well as rapid beating of the heart, breathlessness and fatigue occur, suspicion of heart disease often arises. If it is remembered that the pain of cardiac neurosis bears no definite relationship to effort, is frequently described as sticking, needle-like, or soreness, that often it is associated with inframammary tenderness and hyperalgesia, so that the pressure of the stethoscope sometimes elicits it, and that it may be accompanied by a sense of choking as well as sighing respirations, there will be no difficulty in the differential diagnosis, particularly when these symptoms are associated with the whole picture and life situation of the person with cardiac neurosis.

The problem is not an easy one because the patient is apt to insist, "But there must be something the matter." He cannot understand that so much distress can occur unless some vital organ is seriously affected. Moreover, if one does succeed in reassuring him for the time being, he may continue to hold the reservation, "But if this sort of thing continues surely something will happen"; in other words, "How long can my heart stand this?" Telling the patient to control himself is like trying to hold back steam under pressure—if it does not come out the spout it tries to blow the lid off the tea kettle. Really a person is quite as incapable of controlling his anxiety as he would be incapable of controlling his own acutely inflamed appendix. As long as the discussion is kept on the level of trying to persuade him that he does not have physical disease one gets no place because one cannot argue with an obsession. One must get at the mixed feelings, the conflict, that underlies the anxiety, and this can only be done by encouraging the patient to talk about his personal problems. This discussion will usually have to do with the family group. For example, in a patient whom I saw recently, a young married woman caring for a sick mother, the feelings of respect and devotion opposed to the inner resentment at the effort and cost and disruption of her own family life led to anxiety which could not be dealt with as long as the approach was on the level of reassurance regarding the absence of organic disease, telling the patient that she must control herself, and giving phenobarbital.

The inability to concentrate often gives rise to the fear of "losing the mind." Along with this fear frequently there are ideas of suicide. Both are distressing to the patient and usually are not volunteered. When the patient is assured that it is his feelings which are involved and not his "mind" and that the reason his "memory fails him" is because he is so preoccupied with

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5. Levine, M.: Proceedings of the Brief Psychotherapy Council, Chicago, Institute of Psychoanalysis, October 1942.

concern over his problems, then he may confess his fear that he was "losing his mind" or his ideas of doing away with himself.

Once these ideas are brought to the surface and ventilated, and the patient receives sufficient reassurance, then often much improvement occurs. Indeed the intensity of the fear and the amount of reassurance necessary to abolish it serve as a crude index to the depth of the neurosis.

It is a good rule to listen rather than talk. Giving advice on highly charged emotional matters is dangerous. To paraphrase Lindemann,[6] "Clumsy psychotherapy is as dangerous to the social life as clumsy surgery is to the physical life."

Marriage and Parenthood as "Cures."—One more point should be emphasized: The gastrointestinal tract is, above all other systems, the pathway through which emotions are often expressed in behavior. Why this is so becomes apparent when one considers that the infant's first contact with the world is through the mouth so that the processes of feeding and feeling must relate themselves to one another. Therefore, on the love and security or anxiety and insecurity which become associated with the nursing process will depend many of the psychosomatic relationships of adult life, called forth by events which awaken old associations. Truly it can be said that bed and board are as indissolubly related in the life of the adult as are sucking and sensuality in the life of the infant.

People almost always blame their illnesses on "something they et." I say, "No, it's probably something you met." And so often it is true that the life situation has precipitated the trouble but instinctive tendencies place the blame on something swallowed; i.e., the food eaten at the time. In the same connection, people are gullible about wanting a cure by "swallowing" some magical medicine, vitamins, for example. I say to them, "The cure is not in swallowing; it's in spitting out"; in other words, talking about some of the things that are causing trouble.

It is not unusual for physicians to recommend pregnancy and parenthood as a cure for neurotic and psychosomatic illness. This prescription is rarely if ever of value. It is a rather safe rule that the unstable person will not be helped by becoming a parent, but will usually be made worse as a result of the added responsibility. How often on taking the history of neurotic persons, and especially women, does one hear, "I was perfectly well until my first child was born, but I haven't had a well day since." It is true that some neurotic women will feel better during pregnancy, but they pay dearly for their short period of improvement. Nor should the cost to the child be forgotten. Not only does parenthood not cure neurosis but it prepares the way for another spoiled life, because this is surely one of the ways in which neurosis is perpetuated. The atmosphere of the home in which there is serious emotional maladjustment creates the culture medium for the development of further emotional problems. This is the real "social disease." Psychologic contagion is as important as germs in causing illness. The advice to an incompatible couple—"What you need is a child; then you will have a common interest"—is as unenlightened as it is dangerous. While it may succeed in holding the marriage together, who can say how many children are thus sacrificed on the altar of incompatibility?

The Attack of Anxiety.—Rather frequently the first pronounced evidence of neurosis may be an attack of anxiety, and again and again in studying the histories of patients with chronic invalidism of emotional origin one finds that the first outspoken manifestation of illness was the sudden onset of anxiety with apprehension and dread. There are a feeling of weakness, sweating and a sensation that something terrible is about to happen. There are dyspnea, palpitation and, sometimes, nausea. The attacks usually last only a few minutes and subside rather quickly but may last for an hour or more. Weakness and fatigue follow. The emotional as well as the physical distress is so pronounced as to cause the patient to conclude that some serious physical disability is present. Almost never does he conclude that his difficulty is emotional. Most people prefer to think that physical distress means physical disease, and unfortunately physicians too frequently have assisted them in this belief. When a patient with an acute attack of anxiety is first examined, the physician notes the rapid pulse and listens to the pounding heart and all too often permits the patient to believe that the heart is diseased, that hyperthyroidism is present, or covers his unwillingness to make a diagnosis of a psychologic disorder by using some such term as neurocirculatory asthenia or autonomic imbalance. To give drugs and do nothing about fear is to mislead the patient into feeling that his distress is due to a physical disease rather than to an emotional disorder.

What is Psychotherapy?—What, indeed, is psychotherapy? Too often it is assumed to be something vaguely referred to as "the application of the art of medicine." This defies analysis but seems to represent a combination of the experience and common sense of the seasoned practitioner, an intuitive knowledge of people, the cultivation of a charming bedside manner, such trifles as serving food in attractive dishes and the generous use of sedatives, placebos and reassurance. The psychologic approach in medicine, essential for psychotherapy, consists of something more. It is a medical discipline to an equal degree with internal medicine itself. It is an effort to understand the personality structure of patients, the mental mechanisms which are at work and the specific relationships of psychologic situations in the precipitation of the illness.

Reassurance, in the majority of instances, unless combined with an analysis of the illness from the standpoint of the behavior, gives only temporary help and depending on the degree of anxiety, has to be repeated constantly, like a dose of digitalis in a failing heart. Closely allied to reassurance is another superficial treatment that rarely results in more than temporary help; i.e., environmental manipulation, without any attempt to give the patient insight into his conflicts.

Real psychotherapy, which is directly the opposite of simple reassurance, tries to make the patient understand the meaning of his symptoms and the nature of his conflicts. It is a process of reeducation and, when properly done, leads to sufficient emotional development so that the necessity for symptom formation is abolished. The best example of this kind of psychotherapy is psychoanalysis, but for various reasons this method cannot be applied directly to the majority of patients. Nevertheless, psychoanalytic insight and guidance prove adequate to handle the emotional factor in the majority of psychosomatic disturbances. Between simple reassurance at one end of the scale and adequate psychoanalysis at the other there are all degrees of psychotherapy which can be applied, depending on the degree of illness and circumstances of the patient.

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[6] Lindemann, E.: Therapeutic Procedures in Psychoneurosis, New England J. Med. **227**: 584, 1942.

Major and Minor Psychotherapy.—A considerable number of these patients cannot be sent to psychiatrists, nor is it necessary. Not that there is anything reprehensible about consulting a psychiatrist—this too is a problem of education—but there are not enough psychiatrists to take care of the thousands of patients, and moreover, as I have tried to show, a great part of this work lies in the field of general medicine. Another way of stating the problem is to say that there are a major and a minor psychotherapy just as there are a major and a minor surgery. Many physicians who practice general medicine feel themselves capable of doing minor surgery, but only a few have the skill to attempt major surgery. They would not permit themselves to attempt something for which they are not prepared. This is just as true in regard to psychotherapy. The general physician must be able to treat the minor ailments, but he must be able also to recognize when the problem is beyond him, and then refer the patient elsewhere for major psychotherapy. Such knowledge and such an approach frequently will save the patient from unnecessary troublesome and expensive medical or surgical treatment with a resulting further degree of invalidism.

Cost of Psychotherapy.—What about the question of time, effort and expense of psychotherapy? True it is that all of this takes time and effort and must be paid for; yet when one looks into the time, effort, and expense that have been expended by many patients or by institutions taking care of these patients in the usual medical approach, one realizes that an hour or two well spent in a discussion of the life situation of such patients would obviate a great deal of this expense. It is amazing what the total expense of a great many of these unnecessary studies amounts to so far as the institution is concerned, and of course the same thing is true in the case of private patients. The day is close at hand when we will regard some of these "thick chart" patients, this polyphysical approach, with the same amusement and disdain with which we now regard the polypharmacy of a bygone age in medicine. Hospitals are beginning to understand that it is not only intelligent but economical to utilize the service of a psychiatrist in the general medical division, and this same idea can of course be applied to private patients, with this difference, that the majority of them can be and should be handled by the general practitioner. But he asks, "How can I possibly take the time to do this and, if I do, how can I make a living?" I answer that it is not necessary, of course, to make such a detailed inquiry in every patient that one sees, but, in chronic illness in particular, when one feels the necessity for such a study, then time must be taken and in the end will prove economical not only from the human standpoint but from the standpoint of cost of medical treatment. If one cannot take the time in the midst of a busy office hour for a special patient then an appointment can be made for the purpose. It will be worth while as far as the health of the patient is concerned and in satisfaction to the physician.

SUMMARY

The main point of this discussion can be stated briefly: The study and treatment of illness constitutes much more than the investigation and eradication of disease. Yet there is nothing new or startling in this point of view. We have heard a great deal in recent years about the study of the organism as a whole, but for most part we have been paying only lip service to this concept. We have been led to believe that the art of the physician, having to do with his common sense or intuition, as opposed to his science, is sufficient to grasp the problems that we have been considering. It is not enough. A real understanding of psychodynamics is necessary in order to study the emotional life in relation to ill health.

It is my hope that every physician will be so trained that he may be able to understand and manage the many emotional problems that are presented to him daily. At the postgraduate level we need short orientation courses in centers that are properly staffed. At the graduate level better training facilities should be developed for residents in medicine, and the other medical specialities, to acquire the psychosomatic approach to medical problems. At the undergraduate level, we need, not more and more hours of psychiatry inserted into the curriculum, but a real integration of the psychosomatic point of view in every department, preclinical as well as clinical. As Margolin[7] has well said, we need homogenization instead of stratification. This of course must wait until teachers are available in these various departments who have a real understanding of psychodynamics. And beyond this, or rather before this, our students must come to us prepared in the social sciences as well as in the physical sciences. And the social sciences must include a psychology that gives a better explanation of human behavior than is now furnished in most colleges. All of this, unfortunately, is a long way off, and yet we are moving swiftly. Military medicine gave a great impetus to this development and the pressure is going to come from the people themselves. We would be wise to anticipate them. Therein lies our hope for an important development in medicine. As a part of this process and essential for its development general hospitals must establish divisions for the observation and treatment of psychoneurotic and psychosomatic problems. The time has passed for psychiatry to lead an isolated existence. Until it is brought into physical proximity with general medicine it cannot achieve final integration into the body of medical knowledge.

ABSTRACT OF DISCUSSION

Dr. O. Spurgeon English, Philadelphia: Patients like familiar terms when the cause of their illness is diagnosed. They feel at home with words like ulcer and bronchitis, as they have some experience already with these conditions. They feel less sophisticated about anxiety and the symptoms it will produce such as weakness, dyspnea, palpitation, nausea or dizziness. In this field it is well to be armed with what Dr. Weiss has called the "homely explanation for symptoms." To understand the attack of anxiety and its results, then, it is necessary to recall to patients the familiar phenomena of early childhood, such as a fright by a dog, being lost in a store or growing panicky in a fast moving elevator. The mother soon cures the anxiety and accompanying symptoms of breathlessness, palpitation and body discomfort in such cases. When the patient knows that anxiety is a familiar nonlethal phenomenon frequently present during growth and knows that he may cease worrying about illness in his body and start creating and acknowledging the kind of friendship, kindness and good will which cure childhood anxiety, then and only then does he get the right therapeutic attitude and begin to make progress. It is not easy educational work, but if mastered it is most important for the patient's welfare. It cures many, prevents others from chronic invalidism, and, finally, if some have to be referred for specialist treatment, it has started the treatment on a sound basis consistent with the philosophy of psychotherapy generally.

Dr. Sidney A. Portis, Chicago: It is difficult for those trained in the organic school of medicine to evaluate end results.

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[7] Margolin, S. G.: Personal communication to the author.

There is still a paucity of accurate measurements in this field. However, I think it is important to recognize there is no such thing as a neurotic patient. The patient's illness is interdependent on a disturbed physiologic balance in the body which is the result of altered stimulation of the nervous system originating in the higher emotional centers. We can no longer dismiss the complaints of these patients because we cannot find any organic evidence to substantiate the symptom complex. This is especially true in gastroenterology. If the average gastroenterologist cannot find organic evidence of disease to correlate with the clinical picture of the patient, he frequently gives the patient the "brush-off." I often wonder why this presumed hostility has developed in physicians and conclude it is because they do not have sufficient insight into the effect of emotional stimuli on body processes. The average gastroenterologist could honestly say that between 70 and 80 per cent of his office patients fall into a group in which there are no organic findings either from the laboratory or the roentgenologic point of view that can be correlated with the clinical picture. This important problem confronts all of us daily. An important factor in handling this type of patient is to gain his confidence. The patient should be told that he has no organic abnormalities at present but continued altered physiology may lead to subsequent organic changes. Peptic ulcer and ulcerative colitis may classically fall into this pattern. The patient must be impressed with the fact that the normalization of this so-called pathologic physiology will result in the relief of his symptoms. We must approach the patient's problem with a great deal of sympathy, tolerance and understanding. We must give him insight into the factors which led to the development of his disability. One can usually discuss early childhood patterns, life situations and environment and bring home to the patient that this disturbed emotional household has led to the development of the present symptom complex. I continually try to teach my interns, residents and associates in the office that they should be sympathetic to the life situations of the patient. At the outset it may be difficult for some physicians to gain the confidence of their patients when facing these problems because the patient soon learns that the doctor is not sure of his ground. However, as experience increases and sincerity develops, the problem becomes easier and the patient will develop a transference to his physician just as he does to his psychiatrist. Finally, it is important for the physician to recognize that a sympathetic history should be taken for the patients who have emotional complaints. The patient should at no time be aware that this point of view is uppermost in the mind of his physician. He then should be given the benefit of a thorough laboratory and roentgen investigation. With all these facts before him, the physician is in a much better position to advise the patient about his problem and the task will be much easier.

Dr. Herbert F. Robb, Belleville, Mich.: There are definite psychic factors in functional and organic disease which are too often overlooked and ignored; nevertheless we should not fail in our treatment of the patient to give proper consideration to biologic and social factors which have to do with psychic reactions which in turn are associated with functional and organic diseases. In our revolution of environment from a rural agricultural to an urban industrial civilization there have been great changes to which we have not adjusted ourselves, one of which is our diet. In 1840, 55 per cent of the calories in the American diet were in unprocessed cereals, and according to Moore's "Pathology" there were 600 international units of vitamin B_1 in the average daily diet. Today, about 45 per cent of the calories are in cane sugar and processed cereals which contain about 50 international units of vitamin B_1. B_1 avitaminosis causes a disturbance of metabolism of carbohydrates and the accumulation of intermediary products, lactic and pyruvic acids in toxic amount. There may result functional and later degenerative changes in the central and peripheral nervous systems and general nutritional changes due to interference with the gastrointestinal function. Experimental thiamine deficiency in man causes fatigue, lassitude, anoxia, bradycardia, precordial pain, with electrocardiographic changes and changes in the personality of the subject. He is sensative and can not take criticism without showing considerable emotion. B_1 and other avitaminoses affect a person, especially at the age of puberty during the age of rapid physical growth. School children often make good records until the sixth or seventh grades and then begin to fail because of mental inadequacy as the result of thiamine deficiency. In three or four years they are so far behind their age group that they frequently become delinquent, start skipping school and are sent to the detention home for wayward children. Dr. Weiss mentioned that many women date their illness from the birth of their first child. Frequently psychical and functional disturbances are associated with the use of unsatisfactory contraceptive practices. This problem is much worse in our industrial urban civilization with its later marriages and lower birth rate than in the rural agricultural community with younger marriages and higher birth rates. Biologic and sociologic factors should not be overlooked in the use of psychotherapy.

DR. EDWARD WEISS, Philadelphia: I would suggest in closing that we listen rather than talk to our patients and that we try not to give advice on involved emotional matters, such as marriage and divorce. Then comes the question of missing organic disease. Somebody usually reminds me that in becoming interested in psychosomatic medicine one may overlook organic disease, not mentioning that an exclusive organic orientation leads to equally serious consequences in overlooking neurotic illness. Of course, as long as we are human, we are going to make mistakes. But if we plant one foot firmly in tissue pathology and the other foot firmly in psychopathology, then I think we have the correct balance for this approach.

ABNORMAL PRESENTATION

H. HUDNALL WARE JR., M. D.
Richmond, Va.

The subject abnormal presentation necessitates a discussion of several abnormalities. In the limited time for this paper I will review only the salient points of each.

First, one should remember that every pregnant woman is entitled to a careful complete physical examination and accurate pelvic measurements early in pregnancy regardless of whether she is a private or a clinic patient. A careful pelvic examination may reveal abnormalities of the bony pelvis or soft tissues which often predispose to faulty presentation when the pregnancy is at term.

Routine examination of the patient's abdomen and the use of Leopold's four maneuvers during the last month or six weeks of pregnancy will enable any physician who is a careful observer to diagnose the position of the fetus before the onset of labor in most cases. When an abnormality is suspected, a roentgen examination of the mother's pelvis and the fetus is certainly indicated. Fetal abnormalities, as well as maternal abnormalities, predispose to abnormal positions. A fluoroscopic or roentgen examination may prevent an unnecessary operation done primarily in the interest of the baby.

Hydrocephalus can be diagnosed by roentgen examination, but some abnormalities of the soft tissues of the fetus may not be recog-

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Read in a panel discussion on Problems of Delivery before the Section on Obstetrics and Gynecology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N.J., June 11, 1947.

nized until the labor is delayed and intrauterine examination is resorted to. I have seen 2 cases in which a large meningocele had to be perforated before the after-coming head in a breech case could be delivered. Enlargement of the fetal abdomen may be due to ascites, cysts of the kidneys, a distended bladder, enlargement of the liver and other organs.

Titus[1] said, "when there is hydramnion, the excessive fluid interferes with engagement, while in multiparas with relaxed abdominal walls this favors displacement of the presenting part." Falls[2] has called attention to abnormalities in the shape of the uterus as a cause of abnormal presentations.

Oblique presentation is usually transitory, and converts into either a longitudinal or a transverse presentation early in labor if not before. Whenever recognized in the latter months of pregnancy or early in labor, an attempt should be made by abdominal manipulation to change the oblique to a vertex presentation. When this procedure is attempted in the latter months of pregnancy the patient should then wear a form-fitted maternity corset or abdominal binder Pads may be used to keep the head over the pelvic inlet.

Transverse presentation occurs when the long axis of the fetus crosses the long axis of the mother at about a right angle. Torpin[3] reported the incidence of transverse presentation as 1 in 615 in Negro women and 1 in 1,090 in white women. Titus,[1] Greenhill[4] and others stated that shoulder presentations occur about once in 200 cases, and more often in multiparas than in primparas. Stander[5] stated, "The existence of a transverse presentation in a primiparous woman is a prima facie evidence of a lack of accommodation, usually the result of disproportion between the size of the head and the pelvis, though occasionally it may be due to hydramnios." In multiparas, the most frequent etiologic factor is abnormal relaxation of the abdominal and uterine walls. Falls has shown that abnormalities in the shape and size of the uterus predispose to transverse presentation.

All authorities have agreed that transverse presentations are dangerous for both the mother and the baby. Prolapse of the umbilical cord is a frequent complication when the cervix is partially dilated and the membranes have ruptured. Labor is frequently prolonged and delivery difficult, resulting in a high fetal mortality. Maternal exhaustion, a tight uterus and finally rupture of the uterus occur frequently in the neglected cases of transverse presentation. This danger can be reduced by careful examination of obstetric patients late in pregnancy and early in labor. The pelvic measurements should be reviewed, cephalopelvic disproportion must be carefully looked for, and other abnormalities ruled out.

If the transverse presentation cannot be converted to a vertex, and there is some degree of pelvic contraction, cesarean section should be elected. This applies to patients who have not been contaminated by internal examination and those whose membranes have not ruptured. If the patient is seen after rupture of the membranes or the onset of labor, and she has a disproportion, but has not been contaminated by internal examination, membranes have been ruptured only two or three hours or she has been in labor six or eight hours and the fetus is still in good condition, she may be delivered by low cervical flap or extraperitoneal cesarean section.

When there is no disproportion, and the patient is in labor with some dilatation of the cervix and the membranes have ruptured but the uterus is not tight, a Braxton Hicks version, pulling down one or both feet, may shorten labor and reduce the danger of rupture of the uterus. Unfortunately, this procedure carries a high fetal mortality.

If the pelvis is normal, the baby not too large and the uterus well relaxed, a large Voorhees bag may be introduced with the hope of preventing prolapse of the cord and obtaining dilatation of the cervix. The delivery of the baby may then be completed by internal version and breech extraction. In my experience, this procedure has proved both dangerous and of limited value.

When a transverse presentation has been neglected, the uterus has become tight, the fetus is dead or in poor condition and the maternal pelvis is ample, decapitation of the fetus and extraction of the body, and then the head, may be the operation of choice. When the aforementioned conditions exist and there is real pelvic contraction, it may be necessary to do a cesarean section and hysterectomy. I think that rupture of the uterus is a real danger when a transverse presentation is present and neglected. Destructive operations on the fetus cannot be done without some danger to the mother.

Brow presentations are said to occur once in 1,500 cases. These presentations are usually transitory but frequently result in face presentations because of further deflexion. The treatment of a brow is intelligent expectancy unless there is disproportion between the fetal head and the maternal pelvis. When the latter condition exists, the baby should be delivered by cesarean section while it is in good condition and before the mother has become contaminated or exhausted.

Face presentation occurs once in 200 to 500 cases. The face presents when deflexion is carried to its highest degree. Fortunately, the majority of face presentations terminate

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1. Titus, P.: The Management of Obstetric Difficulties, ed. 2, St. Louis, C. V. Mosby Company, 1940, p. 522.
2. Falls, F.: Diagnosis of Foetal Deformities in Utero, Am. . Obst. & Gynec. 16:801. 1928.
3. Torpin, R.: Transverse Presentations, with a Report of Twenty-Four Cases Including One of "Conduplicato Corpore," Am. J. Obst. & Gynec. 39:92, 1940.
4. Greenhill. J.P.: Principles and Practices of Obstetrics, ed. 9, Philadelphia, W. B. Saunders Company, 1947, p. 573.
5. Stander, H.J.: Textbook of Obstetrics, ed. 3, New York, D. Appleton-Century Company, Inc., 1945, p. 929.

spontaneously and without assistance. Again I emphasize a review of the pelvic measurements and a careful estimate of the fetal size, particularly the fetal head, to determine the cause of the presentation. If there is a true disproportion, the fetus should be delivered by elective cesarean section before the onset or early in labor.

When the chin is posterior with a face presentation, spontaneous delivery is impossible unless the fetus is small and the pelvis large. In a normal pelvis an attempt should be made to rotate the chin forward or change the position. If this fails and the uterus relaxes, the fetus may be delivered by internal podalic version and breech extraction after the cervix is fully dilated. If this is impossible and the baby and the mother are in good condition, delivery may be accomplished by cesarean section.

Breech presentation occurs in about 3 per cent of all deliveries. It is considered as abnormal because of the high fetal mortality resulting from it. The maternal mortality is not usually increased by breech presentation, but maternal morbidity is increased, and injuries to the maternal soft tissues do frequently occur in breech delivery.

The fetal mortality rate in breech presentation can be reduced and traumatic injuries resulting from breech delivery are usually preventable.

As in any obstetric case, accurate pelvimetry before the onset of labor and consideration of the attitude and size of the fetus will give valuable information to the obstetrician. When the baby presents as a breech in a patient with a borderline or slightly contracted pelvis, roentgen examination of the baby and the mother's pelvis will give information which is useful at the time of delivery. In a recent review of 236 consecutive breech deliveries, there was uncorrected stillbirth and newborn death rate of 5.46 per cent. When correction was made for babies with congenital deformities incompatible with life and babies who died in utero before the onset of labor, the combined mortality rate for both stillbirths and newborn deaths was 2.7 per cent.

I believe that the onset of labor should be spontaneous in cases of breech presentation whenever possible. The membranes should not be ruptured until the cervix is fully dilated. The fetal heart rate should be watched closely. Delivery should be with the mother under anesthesia, and body, shoulders and head of the baby should be guided through the pelvis even when the hips deliver spontaneously.

Delivery of the breech through the vagina should not be attempted until the cervix is fully dilated and retracted. In the presence of a normal pelvis, the second stage should not be permitted to be unduly prolonged before extraction of the baby. A wide episiotomy before delivery of a breech presentation reduces trauma to the baby and mother and decreases fetal mortality.

In assisting a breech delivery and whenever it is necessary to extract a baby presenting as a breech, I follow Potter's technic. Piper forceps are applied whenever the head cannot be delivered easily. The Celsus-Wiegand-Martin maneuver can be used to advantage in delivering the after-coming head through the pelvic canal whenever assistance is indicated.

When the fetus presents as a breech in a definitely contracted pelvis and there is cephalopelvic disproportion, an elective cesarean section should be done before the onset of labor.

DISAPPEARANCE OF CARCINOMATOUS ULCERATION OF BLADDER FOLLOWING URETEROSIGMOIDOSTOMY

Report of Two Cases

EDWIN DAVIS, M. D.
Omaha

It is my purpose to report the clinical disappearance of carcinomatous ulceration of the bladder following diversion of the urinary stream and to point out the possible biologic significance of this phenomenon in connection with the cause of certain tumors of the bladder. These observations are based on repeated cystoscopic studies confirmed by preoperative biopsy and by subsequent gross and microscopic examination of the excised bladder by competent pathologists.[1]

The obvious inference that these tumors were caused by a carcinogenic urinary ingredient is thought provoking and involves a consideration of the closely related subject of chemical carcinogenesis, which may be defined as "the production of malignant, transplantable, metastasizing new growths in laboratory animals or human beings by the action of cancer-producing chemicals introduced into the body, intentionally or inadvertently, by ingestion, inhalation, injection or cutaneous application" (Davis[2]).

Although having received but scant mention in other than special journals, the experimental achievements in this field during the past fifteen years have been little short of astounding. "Cancer may be produced at will in a majority of the animals treated, with a variety of chemical compounds" (Cook[3]), mostly prepared synthetically and of known molecular structure. Proved carcinogenic substances are exceedingly numerous and varied as to chemical structure and may be naturally occurring or synthetic, organic or inorganic and exogenous or endogenous in origin. There is evidence that carcinogens may masquerade unrecognized as *innocent substances*, resulting in chronic occupational, environmental, therapeutic or cosmetic contact. There is proof of the carcinogenic potency of certain *artificial ingredients of foodstuffs* (Cook and Kenna-

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[1] Dr. J. P. Tollman, Professor of Clinical Pathology, and Dr. H. E. Eggers, Chairman, Department of Pathology and Bacteriology, University of Nebraska College of Medicine.

[2] Davis, E.: Chemical Carcinogenesis, Drugs, Dyes, *Remedies* and Cosmetics with Particular Reference to Bladder Tumors, J. *Urol.* 49:14, 1943.

[3] Cook, J. W.: Carcinogenic Chemical Agents, Yale J. Biol. & Chem. **11**:1, 1938.

way[4] and Reding[5]), and evidence has even been submitted directing suspicion against certain foodstuffs themselves, including glucose, sesame oil (Schiller[6]), wheat germ oil (Rowntree and others[7] and Rider[8]), olive oil and lard (Burrows and others[9]). Steinor and his associates,[10] after an extensive investigation as to "the possible carcinogenicity of over-cooked meats" and other substances, advised "further study of the carcinogenic potency of heated vegetable fats." Awaiting confirmation is the report (Widmark[11]) of carcinogenic substances obtained from roasted meat and browned butter. Eller and Wolff,[12] reviewing the literature, concluded that "the evidence that experimental tumors can be produced by a diet rich in vitamins is inconclusive," although they stated that the majority of authors consider vitamin excess to be a factor in tumor initiation and tumor growth.

In addition to these multiple exogenous sources, carcinogenic properties have also been ascribed to certain endogenous (physiologic) substances produced within the body, acetylcholine and estrogens being among these. For instance, Hall and Franks[13] reported "an inordinate number of tumors which developed in various animals" during prolonged administration of acetylcholine. Cramer[14] considered the carcinogenic potency of estrogenic substances in the production of mammary cancer in mice, discovered by Lacassagne[15] to be "based upon evidence which is incontrovertible." Eller and Wolff, reporting a certain commercial estradiol-containing face cream which "produced cancer in animals, as well as other profound systemic changes, when applied on the skin in one-fifth the amount recommended for daily use by women," have quoted numerous warnings from authoritative sources against indiscriminate, prolonged use of estrogen-containing ointments. The chemical grouping known as the phenanthrene nucleus, possessed in common by the most potent of the carcinogenic hydrocarbons, is "widely distributed in nature in a variety of physiologically important compounds, including cholesterol, vitamin D, the bile acids and the sex hormones" (White[16]). Auchincloss and Haagensen[17] have commented on the unrestricted and promiscuous use of estrogenic substances in cosmetics. Moreover, this topic has been considered of sufficient importance to have appeared in the editorial columns of THE JOURNAL,[18] in which a distinct note of warning has been sounded. Supporting the work of Steiner,[19] who demonstrated the sporadic occurrence of carcinogenic substances in human liver (20 per cent of specimens examined), Hieger[20] has recently reported "a sarcoma-producing fraction—obtained from mixed lung-kidney-muscle of cancerous and non-cancerous human (autopsy) subjects."

This array of seemingly irrelevant and unrelated facts, indicating the multiplicity, variety and ubiquity of carcinogenic substances, is submitted by way of evidence that the idea of a carcinogen as an ingredient of human urine, either exogenous or endogenous in origin, is by no means fantastic and has in fact ample precedent. The so-called aniline bladder tumor of workers in dye factories which has been long recognized and whose identity and cause has been established beyond question, serves as a classic example of a new growth due to a carcinogen of exogenous origin inadvertently assimilated in infinitesimal daily dosage, through a long period of years by ingestion, inhalation or inunction. The brilliant achievement of Hueper[21] and his co-workers, who succeeded in the production of bladder tumors in dogs by feeding beta-naphthylamine (one of the "intermediates" in the synthesis of aniline dyes), has afforded incontrovertible experimental proof substantiating the mass of clinical evidence concerning the cause of these tumors. The amazing feature is that "aniline tumors" should be produced in an organ remotely removed from the point of contact with the carcinogen and nowhere in the body except in the urinary tract. Concerning the two schools of thought as to whether the contact of the carcinogen (or its "organic conversion products") with the epithelium of the bladder is via the urine or via the blood stream, Hueper[22] has cited evidence to show that "the majority of investigators" believe that the urogenous route is implicated. This opinion is in keeping with the known characteristics of tumors of the bladder and with the evidence herein presented.

The strange "habits" of tumors of the bladder, characterized by a strong tendency to multiplicity and to repeated reappearance (as distinguished from recurrence) elsewhere in the bladder following transurethral destruction, are familiar to all. It was reflection on this unconventional behavior of bladder papillomas, as well as on the extraordinary and intriguing facts in connection with "aniline bladder tumors" suggesting a urine-borne carcinogen, which stimulated my interest in chemical carcinogenesis. As long ago as 1942 I presented before the American Urological Association[2] a review of achievements in this field together with evidence justifying the hypothesis that the genesis of certain "spontaneous" tumors of the bladder might bear a relationship to unrecognized carcinogens masquerading as innocent substances and encountered through environmental or occupational contact or included among the endless list of drugs, remedies, cosmetic concoctions, synthetic vitamins and sex hormones and

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4. Cook, J. W., and Kennaway, E. L.: Chemical Compounds as Carcinogenic Agents, Am. J. Cancer **33**: 50, 1938.

5. Reding, R.: Des dangers, de cancérisation résultant de l'emploi de colorants dans l'alimentation et en thérapeutique, Acta Union internat. contre cancer **4**: 735, 1939.

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12. Eller, J. J., and Wolff, S.: Hormones and Vitamins in Cosmetics, J. A. M. A. **114**: 1865 (May 11) 1940; also 2002 (May 18) 1940.

13. Hall, G. E., and Franks, W. R.: Physiological Carcinogenesis, J. Biol. Chem. **123**: xlix, 1938.

14. Cramer, W.: The Hormonal Aetiology of Breast Cancer, Am. J. Cancer **38**: 463, 1940.

15. Lacassagne, A.: Apparition de cancers de la mamelle chez la souris male, soumis a des injections de folliculine, Compt. rend. Acad. d. sc. **195**: 630, 1932.

16. White, A.: Carcinogenic Substances, J. Connecticut M. Soc. **3**: 4, 1939.

17. Auchincloss, H., and Haagensen, C. D.: Cancer of the Breast, Possibly Induced by Estrogenic Substances, J. A. M. A. **114**: 1517 (April 20) 1940.

18. Contraindications to Estrogen Therapy, editorial, J. A. M. A. **114**: 1560 (April 20) 1940.

19. Steiner, P. E.: The Induction of Tumors with Extracts from Human Livers and Human Cancers, Cancer Research **2**: 425, 1942.

20. Hieger, I.: Carcinogenic Substances in Human Tissues, Cancer Research **6**: 657, 1946.

21 Hueper, W. C.; Wiley, F. H., and Wolfe, H. D.: Experimental Production of Bladder Tumors in Dogs by Administration of Beta-Naphthylamine, J. Indust. Hyg. & Toxicol. **20**: 46, 1938.

22. Hueper, W. C.: "Aniline Tumors" of the Bladder, Arch. Path. **25**: 856 (June) 1938.

the countless aniline dyes used in the coloring of foodstuffs and fabrics.

In the discussion following the presentation of this paper Dr. Robin Pearse,[23] of Toronto, Canada, at my insistent request, reported "two cases of marked regression of infiltrating papillary carcinoma of the bladder occurring after the bladder had been at rest." Although it is not clear whether it was his purpose to emphasize the resting bladder or the absence of urine as the causative factor and although preoperative confirmation at biopsy was lacking, the evidence submitted by Dr. Pearse of the relationship between ureterosigmoidostomy and "regression" of the tumor is to be viewed as impressive.

It was a consideration of these pertinent and intriguing facts which prompted speculation as to what might have occurred as the result of diversion of the urinary stream and which led to cystoscopic examination in the first case after a fifty day interval from the time of ureterosigmoidostomy.

REPORT OF CASES

My own observations on two "phantom" tumors were so essentially similar as to render separate detailed reports unnecessary. The patients were both men, aged 56 and 60 respectively, and each complained of hematuria without other symptoms or physical symptoms of significance. In neither case could the tumor be made out by combined rectal and abdominal palpation under spinal anesthesia.

Preoperative cystoscopic examination in the first case showed a rounded, crater-like ulceration, about 2 cm. in diameter and with an elevated edge, situated just behind the trigone and to the left of the midline. In the second case it was not possible to distinguish positively by cystoscopic inspection alone between inflammation and new growth. This lesion, situated on the left lateral wall of the bladder and being 2½ cm. in diameter and slightly elevated, showed an edematous-looking, reddened surface but no actual ulceration and no papillary processes. The rest of the bladder was normal in each case.

Preoperative biopsy specimens, removed with the resectoscope, in each instance were reported as showing the presence of carcinoma. In the second case Dr. Tollman and Dr. Eggers concurred in the opinion that the histologic picture was that of a highly malignant type of carcinoma.

Bilateral ureterosigmoidostomy in each instance was uneventful with respect to both technic and convalescence.

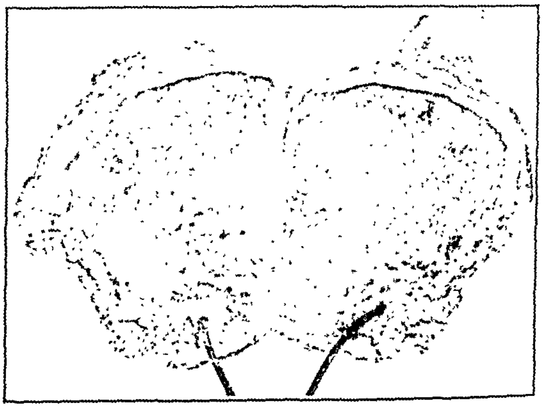
Postoperative cystoscopic inspection, carried out by my associate, Lr. Lee, and myself with caudal anesthesia, with excellent illumination and with excellent cooperation on the part of the patient, showed the bladder mucosa to be perfectly normal throughout after postoperative intervals of fifty and seventy-one days respectively. There was no indication that these were the same bladders previously visualized.

Postoperative biopsy, performed in 1 case only, showed cancer cells situated in the underlying muscle tissue of a deep bite of normal mucosa removed at the site of the previous ulceration with the resectoscope loop.

Cystectomy, performed with the patient under continuous spinal anesthesia, in each instance was uneventful as was convalescence.

The pathologic reports likewise were strikingly similar. In each case careful gross inspection of the excised bladder showed no evidence of intravesical new growth or extravesical extension. However, microscopic section of the wall of the bladder showed cancer cells in the tissues underlying the normal mucosa in each case.

In case 1, as reported by Dr. Tollman, "section of the wall of the bladder showed massive invasion by tumor, which in most places appeared as large unorganized masses of cells, with small areas at intervals showing distinct glandular formation." The diagnosis was adenocarcinoma of the bladder.



Sagittal section of specimen removed at cystectomy (case 2).

In case 2 " sections were taken at several points including the full thickness of the bladder wall. One of these sections showed residual tumor cells similar to those in the earlier biopsy specimen. " The diagnosis was papillary carcinoma of the bladder.

In response to follow-up inquiry each patient reported himself symptom free at the end of three and fourteen postoperative months respectively.

COMMENT

It is to be clearly understood that it is not my purpose to advocate ureterosigmoidostomy as a therapeutic or curative measure but rather to direct attention to the possible biologic significance of this phenomenon. It is true, however, that in cases in which the bladder tumor is not amenable to recognized methods of treatment diversion of the urinary stream may provide a gratifying degree of symptomatic relief and, incidentally, an opportunity for observation and for accumulation of data, and to this end cystoscopic examination after ureterosigmoidostomy is urged.

Since ample experimental and clinical evidence has been cited to provide precedent for the presence of a carcinogen (exogenous or endogenous in origin) as an ingredient of human urine, it is to be hoped that interest stimulated by these observations may further the knowledge concerning the origin of certain tumors of the bladder. The fact that cancer cells were shown to persist in the deeper tissues does not detract from the biologic significance of the complete disappearance of the intravesical portion of the tumors. In the event that the inference concerning a urine-borne carcinogen is correct, the possibility of confirmation by the development of tumors of the rectosigmoid after ureterosigmoidostomy is to be anticipated.

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[23] Pearse, R., in discussion on Davis.[2]

ABSTRACT OF DISCUSSION

Dr. William P. Herbst, Washington, D. C.: Recently it has been our opportunity to observe the influence of a chemical substance on hopeless malignant growths of the urinary tract. We have used inositol, which is one of the members of the B complex group, and up to the present we feel slightly encouraged by the responses on the part of the bladder tumors. We used it on extensive growths and in inoperable cases. We felt that there was a definite improvement in the clinical course of the 4 or 5 patients on whom it was used, and several of them were able to leave the hospital and come back into the outpatient department for periodic observation. It is worthwhile to give testosterone to a patient who is to have a suprapubic operation preliminary to prostatectomy. You all have patients who do not see how they are going to submit to a prostatectomy, and frequently 25 mg. of testosterone will make that patient want to go ahead with the operation. We now have recognized psychogenic amenorrhea. We know from the British, who have done prefrontal lobotomy, that the ketosteroid level in the patients is zero before prefrontal lobotomy and that after prefrontal lobotomy, it becomes normal and the patients resume a more normal general physical activity. When we delve into this subject of chemistry as related to malignant processes, we should think of the psychic status of the patient and its chemical relationship, and we should strive to find more substances which will be on the other side of the list, which Dr. Davis has so excellently presented to us.

Dr. Armando Trabucco, Buenos Aires, Argentina: I should like to add another case to Dr. Davis' report. I performed an anastomosis of the intestine and when I took out the bladder I found no tumor present. A biopsy report six months previously had reported evidence of a papillary carcinoma of the bladder, situated on the right lateral wall and surrounding the bladder neck, but I found that both the bladder and the wall were free of tumor.

THE TREATMENT OF ASTHMA

A Panel Discussion

J. HARVEY BLACK, M.D., Moderator
Dallas, Texas

STATUS LYMPHATICUS

Dr. George Piness, Los Angeles: Status asthmaticus or intractable asthma is an asthmatic condition that does not respond to the ordinary methods of treatment. The etiology is limited: (1) home medication, (2) overmedication and (3) lack of fluids and food. The first and most important therapy is the amount of fluids that patients should receive. Patients can take fluids by mouth, but it does not seem to answer the purpose; they should be given as much fluid as they will take by mouth. The use of fluids intravenously or subcutaneously is more effective. I doubt that any of us realize the amount of dehydration that occurs in the asthmatic person who has been in attack for several days or weeks. The large amounts that I advocate are based on the evidence of having measured and observed patients who have had this condition and the amount that they could take. The average patient requires initially from 3,000 to 5,000 cc. per twenty-four hour period. I usually use distilled water with 5 per cent dextrose. Dr. Unger believes that aminophylline is satisfactory in continuous intravenous therapy in these asthmatic patients. My experience has taught me that it has no value. Aminophylline, in my opinion, is one of the most disappointing drugs in the treatment of status asthmaticus. Usually, if and when it does give relief, it is for a short period, is spectacular and does not last. The patients require mental and physical rest, the type of physical rest that can be best obtained by the avoidance of narcotics such as meperidine hydrochloride ("demerol hydrochloride" N.N.R.) opium tincture and morphine. The best sedative available is chloral. It is the only one I know of that has no effect on respiration. It does not depress. A small dose of phenobarbital is not objectionable. I have never found it to give any trouble in small doses. I do not believe it advisable in large doses. Potassium iodide is still the best drug that we have in addition to fluids. Without the addition of fluids, it has little value except to upset the patient. Iodides, given by mouth if possible and, if that is impossible, given intravenously, may be prescribed in sufficient dosage to assist in liquifying the secretions that these patients have and are unable to eliminate. Without fluids, it is impossible to thin out these secretions. Epinephrine has lost its value at that stage, but if it is continued over a period of time it can be used with effectiveness once again. I have found that when epinephrine is discontinued, caffeine acts as a satisfactory drug in that it is a pulmonary stimulant, perhaps extremely mild, but it does do something to stimulate the patient. In addition, hygienic and dietary care are necessary. If possible and if the etiology is known, it should also be attended to.

PENICILLIN AEROSOL SPRAYS

Question: What is your opinion of penicillin aerosol sprays? Is there a simple method of administering them without the use of expensive equipment?

Dr. Piness: My experience with penicillin sprays is limited. I have seen patients who had penicillin reactions resulting from penicillin sprays. I have never seen a patient who had any permanent measure of relief from it, but I have seen the sad and extensive reactions that have occurred from it. I can see few indications for penicillin in bronchial asthma, with the exception of secondary infections with bronchiectasis or perhaps small pulmonary abscesses. I cannot see any advantage in the use of penicillin by spray or otherwise in bronchial asthma without the secondary infections.

DUST EXTRACTS

Question: Please discuss the use of high dilutions in the treatment with dust extracts.

Dr. Piness: I am one of the few who do not believe in dust stock antigen. In most cases we can still determine the specific thing in the environment to which the patient is sensitive and perhaps are able to remove that offending substance or, if necessary, treat with the specific antigen to which the patient is sensitive.

OXYGEN

Question (Dr. J. Harvey Black, Dallas, Texas): Do you ever use oxygen at all with your asthmatic patients?

Dr. Piness: I do not use oxygen. I do not believe that the patient who has asthma, unless he has cyanosis, requires oxygen. Most patients have difficulty getting rid of their air instead of getting it. Rarely does one see an asthmatic patient gray and cyanotic with shock, unless it is an acute shock resulting from therapy or contact with specific antigen. I see no reason to use either oxygen or helium in status asthmaticus or in any other type of bronchial asthma.

ASPIRATION

Dr. Louis Tuft, Philadelphia: I want to make an additional suggestion. In patients with status asthmaticus who do not respond to the usual measures, my associates and I have found bronchoscopic aspiration to be a valuable adjunct in hospital treatment. It is well worth while considering when other measures fail.

DR. PINESS: In my experiences it is a rare occassion when the bronchoscopist can pull out that cast in the bronchus that results from the patient's being dehyrdrated and in status asthmaticus.

Dr. Charles H. Eyermann, St. Louis: Carrying on Dr. Tuft's idea, I have thought that some persons with status asthmaticus did better by mere tracheal aspiration, without the trouble of bronchoscopic aspiration. The treatment of patients with status asthmaticus should be on a physiologic basis, and each clinician has his own methods to attain these; namely, hydration, sedation and bronchodilatation.

PSYCHOGENIC ASTHMA

Question: What percentage of asthma is wholly and what percentage is partly psychogenic, as seen in general practice?

Presented before the Section on Miscellaneous Topics at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

DR. EYERMAN: The psychogenesis of bronchial asthma is an old concept, and this question cannot be answered on a percentage basis without a review of the historical background. The psyche attends all of us at all times in health and in disease. In situations of either health or disease which have a connotation of hopelessness or of doubtful outcome, the psyche will be accentuated. This is particularly true in bronchial asthma because of the inherited significance of breathing, which is one of the most deeplying and fundamental of vital functions. Undoubtedly, the pathologic change is due to an etiologic agent, but just as certainly are the nuances of symptoms due to the disposition, temperament and personality of the patient. Here is the source, of our confusion, both psychosomatists and allergists, for in many patients we are unable to correlate the intensity and the severity of the symptoms with the results of our physical examination and with our concept of the immunologic mechanism. Psychologic factors or psychologic stimuli induce wheezy breathing along facilitated pathways only in persons who have had the pattern of wheezy breathing already established by allergy.

SINUS INFECTION

QUESTION: How often is asthma due to sinus infection and suppuration?

DR. EYERMAN: I do not know, but I believe the figures are given as about 50 per cent in adults and less in the younger decades. The mere expectoration of purulent secretion does not indicate per se that wheezy breathing was due entirely to plugging of the tracheobronchial system by purulent secretion; I am sure that it is the experience of all of you that persons hypersensitive to an allergen who previously always had what was called a cold, with wheezy breathing, while avoiding that allergen go through infections of the upper and the lower respiratory tract without wheezy breathing. The percentage goes up as one gets older, and then infection is the sole cause. The question on the value of positive pressure therapy with and without helium and oxygen mixtures in status asthmaticus has been answered by the discussion of Dr. Piness. My reaction to that question is that oxygen is used in those persons who have clinical evidence of anoxia. The addition of helium makes it easier for them to breathe. We have had to get along without helium, and those persons who needed oxygen seemed to get along all right without it.

PROLONGED ETHER ANESTHESIA

QUESTION: What experience has there been in the treatment of asthma by prolonged ether anesthesia, and may this be used for asthma of infectious origin?

DR. EYERMAN: The only instance in which I have used ether anesthesia has been in intractable asthma. The ether in these instances has been used both by inhalation and by rectal instillation. When used by inhalation, of course it was not with the usual preanesthetic administration of morphine and atropine. When it is so used, such persons have come out of their status asthmaticus. The relief was due to the great amount of expectoration that was induced by ether inhalation anesthesia without preliminary atropine.

TEMPERATURE AND HUMIDITY

QUESTION: What temperature and humidity are best for the asthmatic person to live in, or does this vary from patient to patient?

DR. EYERMAN: I think that it does vary from patient to patient. Certainly those persons in whom infection appeared to be the dominant element seemed to do better in a dry and hot climate. They also have seemed to do well in a dry and cold climate. Further than that, I do not see any more accurate reply.

AGE, POSITIVE PRESSURE, HUMIDITY

DR. PINESS: My experience has been that most of these people who have sinus infection after the age of 40 are usually patients who have had asthma or some other allergic manifestation of the respiratory tract for many years prior to the infection. Regarding the positive pressure therapy in asthma, my associates and I have had experience in only 2 patients. The sad part about it is that the anesthetic department in the hospital in which the positive pressure therapy was given insisted that the patient be given "demerol" before they would give the oxygen. The "demerol" was repeated on two occasions, and the patient, a young woman of about 25, died. I can see no advantage to the therapy. I had nothing to do with prescribing it. As far as humidity is concerned, I think on the West Coast, Arizona, New Mexico and California, where humidity is low, we find that patients who come from the East have just as much trouble as they had in their home towns. Hence, I do not advise anyone to send them to California if it is just for the sake of the humidity.

PSYCHONEUROTIC FACTORS

DR. LOUIS TUFT, Philadelphia: I would like to say something about the psychoneurotic factors in asthma. When the term "psychosomatic" or "psychoneuroses" is mentioned at present, one immediately thinks of a subconscious element along freudian lines that has to do with asthma. One forgets too often a simple form of emotional disturbance that makes many persons with asthma worse. That is the element of fear, particularly in patients who are having asthma for the first time. Patients with asthma react in different ways to fear, just as patients do to pain. Libman pointed out years ago that the patient's reaction to pain will vary from one of complete hyposensitization to one of extreme hypersensitiveness. The same situation exists in asthmatic patients. Some will take the attack in their stride and accept it as something that they have to tolerate. But many asthmatic patients become extremely alarmed, nervous and upset, and unfortunately they are the ones who are given sterile hypodermic injections for relief. When the sterile hypodermic injection affords relief they immediately are classified as psychoneurotic. We physicians would do much more for asthmatic patients if we would spend more time in quiet reassurance and in trying to allay their fears rather than, as has been my experience with some psychiatrists, to ask them many personal questions which are unrelated to their asthma and which only create antagonism.

TEMPER TANTRUMS

DR. BLACK: A small boy had asthma and had learned that he could throw himself into a temper tantrum and produce an attack of asthma. So, when his mother threatened him with corporal punishment, he threatened her with asthma, and he had her effectively blocked off. We found some definite substances to remove from his diet and his environment. Then he found that he could throw his temper tantrum when he wanted to, but he could have no asthma. He cordially hates me because his mother now spanks him. I think that is a good illustration of the influence of psychic reactions on allergic mechanisms.

GAY TREATMENT

QUESTION: What about the so-called Gay treatment for bronchial asthma from Biloxi, Miss.?

DR. TUFT: As Dr. Unger told you, the essential basis of it is drug therapy. I have just been handed the formula by Dr. Piness. It consists of potassium iodide, tincture of digitalis, potassium arsenite solution U. S. P., and phenobarbital sodium. He gives sodium dehydrocholate or dehydrocholic acid, "calmulsion" (a liquid preparation of dicalcium phosphate and vitamin D) or calcium lactate, and a cathartic, usually cascara. Thirty or forty years ago we heard about a remedy that was being distributed in Buffalo. The essential basis of that was potassium iodide. Attention now apparently is being directed to Biloxi, Miss. I think that any benefit which these patients get undoubtedly is due in part to the drugs, especially to potassium iodide and possibly the arsenic, but also to the all-important factor of change of environment. The latter releases these patients both by taking them away from their environmental allergens and either as a form of psychotherapy or as a combination of both.

RADON TREATMENT

QUESTION: What is the general opinion of the radon treatment of Gay and his associates?

DR. TUFT: This refers to Lesley Gay, who reported this along with Dr. Crowe, who originated the treatment for deafness. During the war this investigation was made on aviators who experienced auditory impairment when they were up in the air, apparently as the result of the collection of lymphoid tissue in the nasopharynx. The treatment then consisted in the insertion of radium or radon seeds or in roentgen therapy. Both methods have been used, but I am not prepared to discuss the advantages or disadvantages or to say which method is preferable. Since many asthmatic children have a persistent lymphoid hyperplasia in their nasopharynx even though their tonsils and adenoids have been removed, attempts have been made, therefore, to get rid of the lymphoid collection in the nasopharynx by use of radium or roentgen therapy instead of surgical treatment.

LYMPHOID TISSUE

QUESTION: Is the lymphoid tissue cause or effect?

DR. TUFT: I presume the questioner has in mind whether it is cause or effect in relation to the asthma. That is debatable. Lymphoid hyperplasia is considered by some as being part of the allergy picture, and therefore probably may be causal. If the lymphoid tissue is large enough to cause obstruction, it may induce asthma reflexly, and under those circumstances should be removed by means of radon, roentgen rays or surgical treatment. Whether the effect of radon is specific or nonspecific is difficult to answer. The current belief is that if it affects or benefits the asthma, it does so through its nonspecific effect, just as roentgen treatment of asthma given over the posterior part of the thorax, the spleen or the long bones sometimes temporarily helps the asthmatic patient, presumably through a nonspecific protein effect.

SECTION OF SYMPATHETIC OR PARASYMPATHETIC DORSAL NERVES

QUESTION: Please discuss surgical or chemical section of the sympathetic or parasympathetic dorsal nerves in asthma.

DR. TUFT: As with any chronic intractable disease, asthma likewise has run the gamut of many suggested remedies. One of these was blocking of the parasympathetics either by means of alcohol or by surgical resection of the pulmonary plexus. This is a radical procedure fraught with considerable danger. If I remember correctly, perhaps 15 per cent or more of those patients died either at the time of the operation or not long afterward. I do not remember the exact percentage, but it is high enough to show that it is a radical and dangerous procedure and should not be prescribed for the average patient. I think that Dr. Gay would probably agree that it should be used only as a last resort and that the patient should be warned about the limited possibilities of eventual cure or remission. Some patients, however, did get remissions for periods varying from six months to several years.

DIET FOR PATIENT WITH ALLERGY

QUESTION: Is there any basis for the theory that an asthma due to any allergen may be aggravated by any other protein? Therefore, should a diet high in carbohydrate and low in protein be recommended in treating such a patient?

DR. TUFT: I am not sure what this questioner has in mind. I suppose he means, if a patient is allergic to one food, should you remove other protein foods from the diet? I do not think that is necessary. As a rule, if there is specific sensitization, it is to one food or to a member of a food group, rather than to all protein foods. I do not think that I would recommend a diet low in protein and high in carbohydrate.

SUMMARY

DR. ROBERT A. COOKE, New York: I shall try to sum up the discussion on the treatment of asthma. There are two phases to the treatment. One is symptomatic, the other is etiologic or against the cause itself. Symptomatic therapy is based on the physiologic procedures of getting air into the lungs and clearing the bronchi. One method is to loosen the tenacious secretions in the bronchi. The drug par excellence for that is iodide. When a rapid effect is needed the sodium salt may be given intravenously. Aminophylline, in my experience, gives relief to many patients with severe asthma. The rectal administration of 8 to 10 grains (0.5 to 0.6 Gm.) either in solution or as a suppository often assures a night's rest. Given intravenously, it is more promptly effective. Ephedrine (orally) and epinephrine are the drugs of choice. Epinephrine (aqueous) may be used in a spray or for injection. For prolonged effect injections of epinephrine in oil or gelatine are recommended. Bronchoscopic examination should be done only on selected cases, as effective aspiration of mucus is not easily secured in this way. Possibly the preliminary treatment and medication may be as effective as the actual aspiration. The old fashioned use of ipecac syrup should not be overlooked. The bronchi are better emptied by the act of vomiting, which tends to express the mucous plugs from the bronchi more effectively than does the act of coughing. Rest is essential. Chloral hydrate, paraldehyde or codeine for the cough are helpful drugs but should not be used to the point of decreasing respiration or depressing the center. Nutrition is another important factor. Attention should be paid to fluid intake, minerals and other essential foods. Severely asthmatic patients may do well on intravenous injections of amino acid products and dextrose (2 liters in twenty-four hours) only for one to two days. The diet is then increased to the point of caloric adequacy. Aside from symptomatic measures, treatment should be directed against the cause or against the allergic factor. This means above all a correct diagnosis. Many factors may be responsible for the asthma. Inhalants, foods, drugs and infection may act alone or in combination. I believe that food is not as frequent an excitant as inhalants or infection, but if there are food allergens they should be determined and eliminated. Whether or not infection acts as a primary excitant, it is certain that infection is important in producing asthma. For that reason the antibiotics and the sulfonamide drugs by their effects on acute and chronic infections of the respiratory tract play an important role in controlling asthma. Education and the cooperation of the patient are necessary. Emphasis should be placed on the fact that asthma is not outgrown but that the earlier the patient is seen, given a correct diagnosis and treated, the better the results will be.

Special Article

PRIMARY CARCINOMA OF THE LUNG

EDWARD D. CHURCHILL, M.D.
Boston

This article is the twelfth of a series to be published by the American Medical Association in cooperation with the American Cancer Society. The series is designed to aid in the early diagnosis of cancer and thereby to gain more effective results in treatment.

Primary carcinoma of the lung is a common disease that is usually not difficult to detect even in its early stages. The constructive results of surgical extirpation are favorable when compared with other visceral malignant tumors, and, more important, steady improvement is being recorded. In the past decade the medical profession has made real progress toward earlier diagnosis of this disease, and there are many reasons to believe that the time lag between onset and recognition will be still further reduced. During the same period many of the technical obstacles to the successful management of pulmonary cancer have been surmounted. The operative mortality rate at first appeared formidable because advanced and oftentimes hopeless cases were being approached with technics that were inadequate at the best. As technical problems were solved and more favorable stages of the disease recognized, the operative hazards have been reduced correspondingly.

The problem of primary carcinoma of the lung is now that encountered in all efforts for cancer control—earlier diagnosis. It is doubtful that more radical surgical treatment can be devised that can materially improve results, although further perfection of technics and supportive measures may gain even better immediate results in the poor risk patients that now make up the small group that succumb after operation. There are relatively few patients today who do not have a reasonable chance of weathering a radical removal of the primary growth

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provided the disease is still localized when surgical treatment is undertaken.

Many aspects of pulmonary cancer that are recorded in the vast literature on the subject are of interest only to students of this particular lesion. I shall consider only certain practical aspects of diagnosis and management that are vital to further progress in the control of the disease. They should be of interest to every doctor, if for no other reason than that he himself is a likely candidate for cancer of the lung. Pulmonary cancer is almost as common as cancer of the stomach, and its greatest incidence is in men (80 to 85 per cent) between the ages of 40 and 70.

PREVENTION

Nothing is known about the cause of the disease that can be translated into effective preventive measures. It is possible that an actual increase in the incidence of pulmonary cancer has taken place during the first half of this century. Several statistical studies support such an interpretation. On the other hand, Boyd,[1] who is in a position to speak freely of the shortcomings of pathologists, thinks the disease was not recognized twenty years ago because it was not looked for. At any rate, evidence that pulmonary cancer was on the increase led to several speculations about causative agents, and among other things, cigarette smoking was incriminated. Further knowledge about the nature and the mode of action of carcinogenic agents, and a careful recording of the smoking habits of ample numbers of patients with the disease, provide no factual evidence on which advice to give up smoking for this reason can be based. Exposure to radioactive ores has been correlated with a high incidence of the disease in classical studies on European mine workers. It may be well to bear this in mind.

DETECTION IN APPARENTLY WELL POPULATION

At the present time there is only one practical way to go about detecting early pulmonary cancer in the apparently well population, and that is by roentgen screening. This method will disclose silent neoplasms in the periphery of the lung. The increasing use of roentgen screening as a public health measure for tuberculosis case finding is bringing a few of these asymptomatic cases to light. It will not disclose the early endobronchial growths that have not as yet encroached on the lumen of the bronchus. When bronchial obstruction occurs, symptoms usually bring the patient to the doctor.

However, the age and sex group of men between the ages of 40 and 60, wherein lies the greatest incidence of pulmonary cancer, is probably the most difficult to secure in routine tuberculosis screening. Also, the repetition of the examination at intervals, a precaution necessary in an effective cancer control program, is beyond the range of necessity in checking for active tuberculosis. About all a physician can do to exclude cancer of the lung in a periodic health examination is to inquire about symptoms that may be pertinent and secure a roentgen examination of the chest, preferably by fluoroscopy.

DETECTION BY EARLY SIGNS AND SYMPTOMS

The early symptoms of pulmonary carcinoma are so commonplace that they may not be taken seriously either by the patient or his physician.

Cough.—Cough is the first symptom in over half the cases and a common (90 per cent) manifestation in later stages; but every one coughs, more or less. Patients may be unaware of the fact that they cough. This complaint always should be explored with the query whether there has been a notable change in the cough habits. It is the cough that "hangs on" in an unaccustomed manner that should alert the physician. He should not be misled by the patient who "drops by" to ask for a cough medicine. An acute infection of the respiratory tract oftentimes (10 per cent) provokes the first signs and symptoms of bronchial obstruction. The event may pass clinically as mild pneumonia that responds promptly to chemotherapy or subsides spontaneously. Whether or not a roentgen examination is deemed necessary during the acute phase, it is essential that localized pulmonary infections be followed by roentgen examinations until the lung fields have cleared. A persisting shadow, or one that shows collapse of a segment of lung, indicates further efforts toward diagnostic investigation.

Hemoptysis.—Hemoptysis, when it occurs (5 per cent as a first symptom, and sooner or later in 40 to 50 per cent of cases) is always an indication for thorough diagnostic study. Blood in the sputum in the early stages of pulmonary cancer usually does not take the form of a brisk or profuse hemorrhage. It is more comparable to the small trickle of blood that is detected as "occult" in lesions of the gastrointestinal tract. In the sputum the amount of blood seems insignificant; the regularity and persistence of its appearance are highly significant. Hemoptysis is likely to be the symptom that brings the patient to the physician (30 per cent).

Loss of Weight.—Loss of weight is surprisingly common and many times seems out of proportion to the size and nature of a tumor that is still localized. Loss of weight need not be interpreted as a sign that the tumor has disseminated but, of course, becomes accentuated as the disease progresses.

Pain.—Pain (50 to 60 per cent) when severe is usually a symptom of extension to the parietal or mediastinal pleura. It suggests invasion of the intercostal nerves or the first dorsal root of the brachial plexus. A constant dull pain referred to the back is presumptive evidence of mediastinal invasion and as such points toward an inoperable stage of the disease. Discomfort and other sensations arising in the chest for which the patient cannot always find adequate verbal expression are often described as pain, but not of real severity. They may arise from an inflammatory reaction, the distortion produced by partial atelectasis or from mediastinal involvement.

Wheeze.—The noting of a wheeze (10 to 15 per cent) may be an early symptom that is oftentimes transient. It differs from the wheeze of asthma by being localized as unilateral both by the patient and the examiner.

Pulmonary Osteoarthropathy. — Pulmonary osteoarthropathy with clubbing of the fingers and joint pain is usually a late manifestation, but may be the presenting symptom of a slowly growing and otherwise silent cancer.

Pleural Effusion.—Cancers that originate in the periphery of the lung are oftentimes asymptomatic until they extend to the pleura and spread by dissemination in the pleural space. This event is manifested by pleural effusion, dyspnea and at times pleural pain or discomfort. While it may be the first, and therefore an early happening in the clinical course, it discloses a late and inoperable stage of the disease as far as treatment is concerned. Specimens of the fluid obtained by aspiration characteristically are bloody and contain tumor cells. Small pleural effusions that persist after an episode that has been considered pneumonia should be viewed with suspicion until they absorb.

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[1] Boyd, W.: Some Reasons for the Recent Increase of Bronchial Carcinoma; Tr. & Stud., Coll. Physicians, Philadelphia 6:317-328 (Feb.) 1939.

Paralysis of the recurrent laryngeal or the phrenic nerves, obstruction to swallowing, cardiac arrythmia, pericardial effusion and obstruction in the superior vena cava are late manifestations of mediastinal extension of the disease. They usually contraindicate operation.

RESPONSIBILITY FOR EARLY DIAGNOSIS

While the burden of responsibility for the early diagnosis of cancer is commonly pictured as resting on the general practitioner, this is by no means always the case. Many patients today have no regular medical adviser and oftentimes place themselves directly in the hands of specialists in one field or another. The patient's own emphasis on secondary manifestations of the disease may cause him to be directed to specialists who are in a position to lose precious time if the false scent is followed. Cough from any cause may focus the attention of the patient on an inguinal hernia he has tolerated for years, or aggravate a prolapsus uteri, the symptoms from which have long been accepted with resignation. There is a danger that surgical treatment, sound in itself but irrelevant to the real issue, may be undertaken. The wheeze may lead the patient to the specialist in allergy, or hemoptysis send him to the tuberculosis specialist who has been known to undertake a long and laborious search to exclude phthisis by bacteriologic analysis or prescribe a trial period of bed rest. A patient with pulmonary osteoarthropathy based on primary cancer of the lung has been known to follow the devious trail from the expert on arthritis via the exodontist to the specialist in physical medicine. Even the neurosurgeon may come into the picture and confuse a cerebral metastasis with a primary brain tumor.

All physicians, whatever their field of concentration or specialization, must be alert to the early signs of internal cancer if material progress is to be made in the control of the disease. This is particularly true of primary carcinoma of the lung with its varied manifestations.

RESPONSIBILITY OF THE ROENTGENOLOGIST

It would be a rare occurrence to arrive at a diagnosis of primary cancer of the lung in the absence of abnormalities discernible by roentgen examination. Precision in the interpretation of these abnormalities thus runs a close second in importance to an alertness on the part of the physician in recognizing early symptoms. A diagnostic roentgen examination in the presence of signs and symptoms does not mean simply taking a roentgenogram. A comprehensive roentgenographic examination includes lateral films and fluoroscopy in addition to the usual anteroposterior exposures. Oblique exposures, spot films, grid films and tomography may be required. Only after comprehensive study and after giving full weight to the clinical manifestations in conference with the referring physician, should one measure a course of delay against the pursuit of further diagnostic investigation.

It is beyond my competence to discuss the details of roentgen diagnosis of pulmonary cancer. While a surgeon or internist may develop considerable skill in visualizing the pathologic lesions displayed on roentgenograms, a precise diagnostic examination is a matter that had best be left in the hands of the highly skilled specialist in roentgenology. However, in order to maintain his position vis-à-vis the surgeon, the roentgenologist must continually check his interpretations with the actual pathologic changes disclosed at the operating table.

RESPONSIBILITY OF THE EXPERT CONSULTANT

Assuming that the clinical manifestations and roentgen examination point toward the possibility of primary cancer of the lung, it is usually desirable at this point to place the problem before an expert consultant. By an expert consultant is meant some physician or surgeon experienced and familiar with the therapeutic management of the disease as well as with diagnosis. This statement may be challenged by those who would extend the responsibilty of the general medical adviser to piecing together fragmentary bits of technical data derived from several different sources. The reason for the statement is that further diagnostic measures, almost without exception, provide information that bears directly on therapy. If these measures are pursued solely to establish a diagnosis, their contribution to the ultimate problem of therapy is likely to be missed and lead to unnecessary repetition. There is no better example of this than bronchoscopic examination.

Bronchoscopy.—The purpose of bronchoscopy in cancer of the lung extends beyond the removal of a fragment of tissue to confirm the histologic diagnosis. The bronchoscopist notes: integrity or paralysis of the vocal cords; the exact position of the growth with reference to the level at which the bronchus must be sectioned if surgical ablation is undertaken; any widening of the angle of the carina formed by the two primary bronchi that may suggest involvement of the subcarinal lymph node; fixation of the region of the growth, and the gross characteristics of any presenting tumor or ulceration. An expert appraisal of these and other bronchoscopic findings is essential to the final decision regarding treatment. Unless the examination is carried out by an operator who is accustomed to make his observations in terms of the feasibility of a surgical attack on the lesion, the bronchoscopy may have to be repeated by one who is.

Bronchoscopy can be expected to yield a biopsy that provides microscopic confirmation of the diagnosis in 60 to 70 per cent of cases. In other words, 30 to 40 per cent of primary cancers of the lung are so situated that they cannot be reached by the biopsy forceps. These proportions are based on series of cases heavily weighted with advanced and inoperable cases, and so are not applicable to the disease in early and surgically favorable stages. Negative findings on bronchoscopy may be of no significance if it is recognized by preliminary roentgen localization that the lesion is inaccessible; for example, in certain segments of the upper lobe. On the other hand, negative findings may be extremely important if the area under question is readily accessible. Improvements in the optical system of bronchoscopic instruments have made visualization of the segmental bronchi of the upper lobes feasible.

Cytologic Methods.—Increased precision in the diagnosis of the disease is provided by methods for recognizing malignant cells in the sputum. In 1935 Dudgeon and Wrigley [2] showed that this method was reliable, and many subsequent observers have confirmed the practical usefulness of the technic.

The method has been modified and its effectiveness increased by examining a specimen of secretion secured directly from the region of the lesion at the time of bronchoscopy. This requires accurate localization of the suspected lesion to a bronchial segment by preliminary roentgen examination and insertion of an aspirating tube into the lumen of the corresponding bronchus. Cells obtained in this manner appear in greater numbers and show less degenerative change than those expectorated in the sputum. Herbut and Clerf[3] examined bronchial secretions obtained by this procedure by the Papanicolaou technic in 30 consecutive cases of primary pulmonary carcinoma. Cancer cells were demonstrated in 22 cases, but biopsy specimens of tissue showed cancer in only 11 cases. Bronchoscopy failed to disclose cancer in 7 cases in which cancer cells were present in the aspirated secretions.

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[2] Dudgeon, L. S., and Wrigley, C. H.: On the Demonstration of Particles of Malignant Growth in the Sputum by Means of the Wet Film Method, J. Laryng. & Otol. **50**: 752-763 (Oct.) 1935.

Negative results of cytologic studies are of questionable significance, and positive results are valid only when the interpretation is made by an experienced observer. A positive finding by [illegible] thod is not as yet given the weight [illegible] tissue biopsy. It is one additional link in the chain of evidence that requires clinical or roentgenographic support.

Bronchography.—Instillation of iodized oil is rarely a useful aid to the diagnosis or localization of pulmonary cancer and should be used only to answer some highly technical question. The ill advised use of iodized oil as a general diagnostic measure or simply to demonstrate bronchial obstruction may obscure or complicate subsequent roentgenographic studies. There is little to be learned from instillation of iodized oil that cannot be observed with spot films, grid films or tomography. This is true, not only for pulmonary cancer, but in other diseases of the chest as well, the notable exception being bronchiectasis. Even here the chief value of the bronchogram lies in the planning of a surgical program, not merely in arriving at a diagnosis that usually can be established by other means.

Differentiation of Primary and Metastatic Neoplasms.—Because the lung is so commonly a site for the development of metastases from primary growths in other organs, this diagnostic question is one that is raised repeatedly. When a primary or recurrent autonomous cancer is actually present elsewhere, the likelihood that the pulmonary lesion is a secondary deposit is, of course, great. Multiplicity of pulmonary lesions is also strong evidence of metastatic disease. Merely the history of the surgical ablation of a malignant growth in the past, if a reasonable period of time has elapsed without evidence of recurrence of the disease and the lesion in the lung is a solitary one, should not close the door to a consideration of surgical therapy.

The roentgenologist is likely to raise the question of a metastatic origin when the abnormal shadow lies in the periphery of the lung and is spherical. When such a lesion is encountered, and it will commonly be found in a patient with few, if any, clinical manifestations, a painstaking physical examination must be carried out not only to detect a primary source but to be certain that other nodules do not exist from which a biopsy can be obtained more readily than from the one in the lung. In view of the frequency with which renal cell carcinoma casts a solitary metastasis to the lung, pyelography should be carried out. The ultimate decision as to whether the pulmonary lesion should be approached surgically is based on a careful weighing of many variables that never take the same pattern in two different cases. Alexander[4] has assembled the experience of several surgeons with the removal of metastatic neoplasms in the lung.

A rare form of metastatic disease results from a metastasis to the wall of a bronchus. This occurrence closely simulates primary neoplasm of the lung as it may produce bronchial obstruction, hemoptysis, malignant cells in the sputum and positive bronchoscopic findings. No one of these is commonly present with peripheral pulmonary metastases, although hemoptysis is not as rare as it was formerly thought to be.

Differentiation of Primary Cancer of the Lung and Tuberculosis.—A round and apparently "stabilized" focus of the adult type of postprimary tuberculosis may closely resemble an early peripheral neoplasm. So also may the rare postprimary nodule of hemic origin that is characterized by dense fibrosis and in many instances by a retarded tendency toward roentgenographically demonstrable calcification. An intensive search for tubercle bacilli may provide an answer in the first mentioned form of the disease, but will not produce positive evidence in the latter.

Depending on the collateral lines of evidence, surgical exploration of the lesion may be required. The operator should not commit himself to total pneumonectomy, however, until further evidence is obtained at operation. Taking of a biopsy specimen of the dense fibrotic nodule of hemic origin may be accomplished by resection en bloc for immediate pathologic diagnosis. Taking of a biopsy specimen of a circumscribed nodule of adult type postprimary tuberculosis should take the form of a lobectomy, because these lesions are filled with caseous material heavily loaded with tubercle bacilli. When carried out with technical finesse, such a "biopsy" oftentimes proves to have been a remarkably effective method of treating the tuberculosis before frank cavitation is established.

Summary.—This review of the responsibilities of the expert consultant makes it obvious that he should have at his command a number of diagnostic technics that range from careful case history taking and physical examination to thoracotomy for biopsy of a doubtful lesion. These responsibilities must be faced in logical sequence and carried through without delay. On the other hand, the consultant may indulge in certain assumptions relative to his responsibility that are not altogether warranted. Attention is called to these because they may retard the development of that close relationship between practitioner and specialist that is desired to promote progress in cancer control. They also directly influence the extent to which the patient will respond to the educational efforts that urge him to consult a physician in regard to early symptoms.

One of these assumptions is that the expert must invariably exclude any possibility of cancer, however remote, by resorting to major diagnostic technics without regard to whether the clinical problem under consideration indicates their use. Another false assumption is that a presumptive clinical diagnosis always must be extended to histologic confirmation despite the fact that the course of management is obviously not going to be altered by the reading of the microscopic slide. Finally, in deciding on the course that the management of an advanced case is to take, surgical exploration is oftentimes proposed as the "only chance" and as such, one that cannot be denied the patient. In their quest for scientific exactitude the members of the profession must not confuse the scientific precision with which certain parts of the evidence can be formulated with the broad responsibility of weighing evidence as a whole. Courts of law may exact severe or even capital punishment if the evidence as a whole is judged valid "beyond any reasonable doubt." It is the responsibility of the consultant in conference with the family medical adviser to determine whether the "only chance" offered by surgical treatment is in truth a reasonable chance, or whether the cancer is surgically "out of bounds" beyond any reasonable doubt.

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[3] Herbut, P. A., and Clerf, L. H.: Bronchiogenic Carcinoma, J. A. M. A. **130:** 1006-1012 (April 13) 1946.

[4] Alexander, J., and Haight, C.: Pulmonary Resection for Solitary Metastatic Sarcomas and Carcinomas, Surg., Gynec. & Obst. **85:** 129-146 (Aug.) 1947.

ALTERNATIVE FORMS OF TREATMENT

There is no possibility of obtaining a lasting arrest of the disease unless the entire growth can be extirpated. Roentgen therapy appears to halt the progress of a few cancers of the lung temporarily. Occasionally actual regression takes place for a period of several months. Applied indiscriminately to advanced cases, roentgen therapy contributes little either to survival time or relief of physical suffering. The nitrogen mustard compounds produce transient and incomplete regression in about one half the patients treated.[5] Castration and the use of estrogenically active substances have been explored on the basis of the unequal sex incidence of the disease, but no indication of effectiveness has appeared. The crucial decision therefore lies in the judgment regarding the applicability of surgical procedures.

INDICATIONS THAT THE CANCER CANNOT BE EXTIRPATED

Extension to Pleura.—A pleural effusion, usually bloody and containing cancer cells, can be interpreted as definite evidence that the cancer has extended beyond the bounds of surgical extirpation. While patients with this form of the disease suffer from shortness of breath, progressive anemia and cachexia, they usually are not subject to severe pain or distressing cough. Aspiration of the fluid and replacement with air afford partial symptomatic relief.

If the diagnosis is in doubt because cancer cells cannot be demonstrated, the replacement of the pleural effusion with air may bring pleural nodules into view on roentgen examination. A biopsy can be obtained with the aid of the thoracoscope or by a limited thoracotomy with the patient under local anesthesia. A pathologic confirmation of the diagnosis is desirable in this type of the disease, as radiation therapy may be helpful and as a general rule heavy dosage should not be administered without accurate knowledge that the disease being treated is cancer.

Extension to Lymph Nodes.—An exacting palpation of the supraclavicular fossae, neck and axillas should be carried out in every case. The removal of a palpable node with the patient under local anesthesia may confirm a presumptive clinical diagnosis and at the same time demonstrate that the cancer has extended beyond the limits of surgical extirpation. This is a less trying procedure to the patient than bronchoscopy and can be substituted for it not infrequently.

Extension to mediastinal lymph nodes is difficult to establish by roentgen examination alone. Presumptive roentgen evidence may become determinative when combined with bronchoscopic fixation of the growth and pain referred to the back.

Lymphatic Dissemination.—Diffuse spread in the lymphatic channels of one or both lungs with the development of small nodules immediately beneath the visceral pleura may be detected on roentgen examination. Thoracoscopy can be an adequate substitute for a formal thoracotomy.

Hematogenous Metastasis.—Spread to the liver may be suggested by the increased size or palpable nodularity of that organ. Peritoneoscopy is a simple procedure that confirms the diagnosis. Headaches or other cerebral symptoms call for a painstaking neurologic examination, including the determination of the visual fields.

Painful Apical Syndrome.—Pain referred down the arm, a Horner's syndrome, and roentgen evidence of erosion of the first and second ribs are often referred to as Pancoast's syndrome. It is usually produced by a primary cancer of the lung in the superior pulmonary sulcus. A cancer that produces this syndrome is beyond the bounds of surgical extirpation, and the severe pain cannot be relieved by local resection, or division of the intercostal nerves. The pain is oftentimes excruciating and the course of the disease agonizingly slow. Relief should be sought by tractotomy or high chordotomy.

Histologic Type of the Tumor.—The prognosis following surgical extirpation has not been fully correlated with the predominant cytologic characteristics of cancers of the lung. The evidence that exists, however, confirms the reasonable hypothesis that growths with highly undifferentiated cells are rapidly invasive and tend to metastasize early. The same may be said for the so-called oat cell type. Significant results achieved by the surgical extirpation of cancers of these morphologic types are rare. A biopsy that demonstrates a highly undifferentiated or oat cell cancer is presumptive evidence that complete surgical extirpation is a remote possibility.

Nerve Paralysis.—Paralysis of the recurrent laryngeal nerve is evidence of mediastinal invasion at a level that precludes complete surgical ablation. Cancers that have produced phrenic nerve palsy may be resectable grossly. It is significant, however, that Ochsner, DeBakey and Dixon[6] analyzed the survival period in their cases from the standpoint of whether the growth was limited to the lung or had extended beyond it by encroachment on contiguous structures or by regional lymph node metastases and found that only 2 of 27 patients with such extension demonstrated at operation survived beyond a three year period, and none beyond six years.

SURGICAL TREATMENT

Operability.—The experience of many different surgeons in the United States and elsewhere has been surprisingly uniform in the results achieved by surgical extirpation. Apparent differences in the statistical tables that record this experience are usually artifacts developed by the terminology employed, the calendar years covered by the report, the selection of cases and other variable factors.

An analysis of the results of surgical therapy customarily starts with those patients that are referred to a surgeon for consideration of operation. This base line ignores the large number of patients in whom a diagnosis is never made or whose disease is judged so far advanced that surgical consultation is superfluous. It is thus impossible to determine with exactitude the extent to which surgical procedures can be an effective control measure in the population at large. Surgical efforts have rarely been measured against the magnitude of the problem as a whole. Few surgeons, particularly those whose cases are assembled from a private clientele, appear to be aware of the selection that has taken place before their own "series" was assembled.

In 996 cases with the clinical diagnosis of bronchiogenic carcinoma at The Brompton Hospital for Diseases of the Chest, in London,[7] from 1937 to and including 1944, only 15.3 per cent (152 cases) were judged suitable for a thoracotomy. In cases in which thoracotomy was done, extirpation of the growth was performed in

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[5] Rhoads, C. P.: Recent Advances in Treatment of Cancer, J. A. M. A. **136:** 305-308 (Jan. 31) 1948.

[6] Ochsner, A.; DeBakey, M., and Dixon, J. L.: Primary Cancer of the Lung, J. A. M. A. **135:** 321-327 (Oct. 11) 1947 (revision by personal communication to the author, March 1948).

[7] Björk, V. O.: Bronchiogenic Carcinoma, Lund, Berlingska Boktryckeriet, 1947; Acta Chir. Scandinav. (suppl. 123) **95:** 1-113, 1947.

75 cases, or 7.5 per cent of the whole. Despite this gloomy picture, which possibly is attributable in part to the war years, the cases considered favorable for thoracotomy increased from 8.2 per cent in 1937 to 25.6 per cent in 1944. Furthermore, resectability increased from 5.1 per cent in 1937 to 13.5 per cent in 1944. These basic figures from the Brompton Hospital are significant because during this period a vigorous surgical program was being pressed by Edwards, Roberts, Price Thomas and Brock. Their importance lies in the base line provided by the population of a large hospital admitting persons with medical and surgical diseases of the chest.

The range of applicability of surgical procedures provided by reports from surgeons in the United States is more favorable, but these reports are heavily weighted by collecting of patients from a wide area because they were judged favorable for operation. They do not accurately represent the state of affairs relative to the disease as a whole. Nine reports (Adams,[8] Burnett,[9] Churchill,[10] Clagett and Brindley,[11] Graham,[12] Jones,[13] Lindskog,[14] Ochsner, DeBakey and Dixon,[6] Overholt[15]) published since 1940, record 1950 cases. In 782 (40 per cent) of these thoracotomy was done, and in 432 cases resection was performed (22 per cent).

It should be recalled that the first total pneumonectomy that launched the surgical attack on pulmonary cancer was performed in 1933 (Graham)[16] and that several of the series of cases referred to date back to that year or shortly thereafter. There is an encouraging trend toward a higher proportion of operable cases in the more recent reports and in current experience.

When an attempt is made to estimate the proportion of patients who die in hospitals as an immediate result of the operation or its attending complications, the changing background provided by technical improvements, chemotherapy, blood transfusion and other adjuvants to surgical management necessitates yearly corrections. In addition, the removal of growths that are not localized to the lung has carried a higher mortality rate than is encountered when dealing with the more favorable localized growths that are coming to the surgeon with increasing frequency. The 1947 report of Jones,[13] based on the experience of the preceding four years, gives a better index of what is going on now than a summation of earlier experience. A total of fifty-two pneumonectomies with but 2 hospital deaths yielded an actual operative mortality of less than 4 per cent. This was accomplished on the basis of performing thoracotomy in 33 per cent of the cases diagnosed and carrying out pneumonectomy in 20 per cent of the total cases. Similarly, in 1946, Adams[8] on the basis of a 31.4 per cent rate of resection recorded a hospital mortality rate of 3.3 per cent in his most recent thirty consecutive resections.

These figures are startling, as they show that the operative mortality rate of total pneumonectomy for pulmonary cancer can now be made equivalent to that of partial gastrectomy for malignant lesions of the stomach (3.2 per cent, Mayo Clinic, 1945), and considerably lower than that of total gastrectomy (16.7 per cent, Mayo Clinic, 1945). The resectability rate for malignant lesions of the stomach, i.e., the ratio of patients who undergo resection to the total patients in whom the diagnosis is made, is somewhat higher (38 per cent).

Survival Expectancy.—Careful follow-up statistics that measure the survival expectancy in pulmonary malignancy treated by surgical resection have not as yet leveled off to even an approximation of accuracy. It is probably more informative to consider that Graham's patient, in whom a total pneumonectomy was performed for squamous cell carcinoma in 1933, is still alive and well than it is to attempt to interpret the preliminary analyses that have been placed on record.

There are several variables to be considered, not the least of which is whether the growth appeared to be localized to the lung at the time of resection or whether it gave evidence of having extended to the mediastinum, either by regional metastases or encroachment on contiguous structures. Ochsner, DeBakey and Dixon[6] performed resection in 43 cases in which the growth was considered to have extended beyond the lung and for which sufficient time had elapsed so that the three year survival rate could be computed. Five of these 43 patients were surviving at the end of three years. Of 18 patients for whom a five year survival rate could be computed, only 1 was alive. Not a single instance of survival as long as one year is recorded for 244 untreated patients.[17] It seems reasonable to suppose, therefore, that removal of the lung bearing the primary growth rids the patient of certain complications of the disease that accelerate his death. The relentless progress of the disseminated cancer continues.

This concept that the local primary growth not only causes distressing symptoms, as in cancer of the rectum, but accelerates death, as in obstructing cancer of the pylorus or esophagus, is well known to surgeons but needs far greater emphasis elsewhere in the profession. Surgical treatment of cancer is too often harshly judged as being futile on the grounds that it fails to produce a lasting cure, rather than on the fact that it makes the best terms possible with a disease that is already hopeless.

Another variable in the reports of survival centers in the pathologic classification of the peculiar tumor known as bronchial adenoma. Arguments as to whether this neoplasm is malignant have obscured certain clinical facts about which there can be no difference of opinion. Clinically, the bronchial adenoma pursues a leisurely and protracted course, and when resected, recurrence or subsequent dissemination is practically unknown. The tumor is rare in comparison with the forms of pulmonary carcinoma under discussion ; yet the inclusion of a few cases when the survival expectancy following operation is being tabulated will afford an unduly optimistic interpretation of results.

Adjuvant Surgical Measures.—Extension to the parietal chest wall is likely to occur with peripheral squamous cell cancers. The pain caused by this extension in inoperable cases may be alleviated by section of the intercostal nerves or may require chordotomy. Drainage of an abscess or empyema may reduce a productive [illegible] The effects [illegible] of chemotherapy are transient and incomplete when the pneumonitis or abscess is peripheral to a blocked bronchus.

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[8] Adams, R.: Primary Lung Tumors, J. A. M. A. **130**: 547-553 (March 2) 1946.

[9] Burnett, W. E., in discussion on Gebauer, P. W.: Differentiation of Bronchiogenic Carcinoma, J. Thoracic Surg. **10**: 373-400 (April) 1941.

[10] Churchill, E. D.: Resection of the Lung, Surgery, **8**: 961-991 (Dec.) 1940.

[11] Clagett, O. T., and Brindley, G. V., Jr.: Bronchiogenic Carcinoma, S. Clin. North America, **24**: 839-850 (Aug.) 1944.

[12] Graham, E. A., in discussion on Lindskog.[14]

[13] Jones, J. C.: Surgical Aspects of Bronchiogenic Carcinoma, J. A. M. A. **134**: 113-117 (May 10) 1947.

[14] Lindskog, G. E.: Bronchiogenic Carcinoma, Ann. Surg. **124**: 667-674 (Oct.) 1946.

[15] Overholt, R. H.: A Common Masquerading Lung Disease, Dis. of Chest **9**: 197-211 (May-June) 1943.

[16] Graham, E. A., and Singer, J. J.: Successful Removal of an Entire Lung for Carcinoma of the Bronchus, J. A. M. A. **101**: 1371 (Oct. 28) 1933.

[illegible] chiogenic Can- [illegible] dy, E. T., and [illegible] cer, Am. J. Roentgenol. **51**: [illegible] Moersch, H. J.: Roentgen Therapy for Bronchiogenic Carcinoma, J. A. M. A. **115**: 2239-2242 (Dec. 28) 1940.

The Operation.—The operation of total pneumonectomy is so standardized that it warrants little comment. The lung is mobilized, if adherent, and the vessels secured by individual ligatures. The bronchus is divided and closed by interrupted sutures. Some operators place emphasis on the use of stainless steel wire sutures, but the important technical precaution appears to lie in the avoidance of necrotizing clamps and sutures. The closed bronchial stump is covered by a flap of pleura, a mobilized intercostal muscle and pleura or a free graft of lung tissue.

The chest is closed without drainage, leaving the dead space to be obliterated partly by organizing exudate and partly by displacement of the mediastinum, rise of the diaphragm and retraction of the chest wall. Some surgeons find that thoracoplasty is advisable in many cases after a certain amount of time has elapsed. Others rarely find it necessary to carry out this procedure. Certainly it should be done for good reason, if at all.

The age group of patients concerned brings a substantial incidence of cardiovascular complications. Cardiac arrhythmia, particularly auricular flutter, may occur in the postoperative period. For this reason preoperative preparation with quinidine is recommended.

Blood lost at the operation should be replaced in volume, but, because of the dangers of edema in the remaining lung, additional fluids are administered in moderation. Oxygen therapy is usually employed during the first twenty-four hours. The total hospital stay after the operation has been greatly reduced and now rarely exceeds two weeks. Early ambulation is beneficial and there is no danger of incisional dehiscence or hernia.

A well administered anesthetic is vital to the patient and the technical steps of the operation. A few anesthetists continue to magnify the technics and complicate the procedure with cumbersome appliances, but as a general rule anesthesia for major intrathoracic procedures has settled down to standardized intratracheal technics that require little comment. The important qualities demanded of the anesthetic agent are, first, that it have as wide a margin of safety as possible and, second, that full anesthesia can be maintained with a high percentage of oxygen in the mixture.

Position on the table, incision, instruments and other details are matters that are best left to the operating surgeon, who is assumed to have sufficient competence to undertake the procedure.

The surgical excision of cancer of other organs began with limited resection and extended to radical resection. In contrast, the surgery of cancer of the lung, except for a few sporadic attempts, started with total pneumonectomy. This in part accounts for the uniformity of results that have been achieved. It is customary for surgeons to take the position that total pneumonectomy is the only acceptable form of operation. If the mortality rate of total pneumonectomy is the same as that of a more limited resection, and the life expectancy rate or disability of persons with one lung equal to that of persons after a lobectomy, the matter can be closed. As long as any disparity in these values exists, however, the question of the place of less radical procedures in carefully selected cases must be kept open.

NONSURGICAL TREATMENT

As long as only 1 or 2 patients out of 5 that come to the surgeon have resectable growths, a patient should be informed before the consultation that his particular problem may or may not be solved by surgical procedures. A patient is likely to come to the surgeon with high hopes that if the growth can be resected his life will be saved but that if the operation cannot be performed he is doomed to die. Even a limited faith in any alternative method of management has been completely destroyed. It is less disturbing to the patient and to an apprehensive family to speak of surgical operation as one of several methods of management that may have to be pursued. It can be explained to the patient that certain forms of his disease can best be managed by surgical procedure and others by radiation therapy, nitrogen mustard, and so on; that sometimes it is necessary actually to look at the diseased area and determine its position and nature by thoracotomy before the decision as to the most effective method of management for his particular case can be made.

When surgical procedures are found impossible, great comfort is derived from the knowledge that some constructive course can be taken, even though the chances of success may be slight. The patient will rarely concern himself about the magnitude of this chance if he is led to feel that everything possible is being done.

There is no short cut that can teach a surgeon what to say and how to say it when he is faced by patients with inoperable malignant disease. He may elect to remain on the purely technical level, a position that certainly is the least troublesome and time consuming. It may be found that this is the only position that can be taken in certain situations. On other occasions, the surgeon may be the only person in a position to guide the patient and his immediate family through a trying period. This takes time. While the exploratory thoracotomy that reveals an inoperable growth may be completed in three quarters of an hour, several hours must be spent with the family, the patient and in conference with the physician who is to take over the daily management of the case after discharge from the hospital.

Surgeons today, struggling to keep abreast of a heavy load of technologic detail, unfortunately find little time for these matters. If they are to maintain their position as doctors in contrast to artisans, the responsibilities entailed must be faced.

Clinical Notes, Suggestions and New Instruments

FLUID REPLACEMENT WITH HALF STRENGTH SODIUM CHLORIDE SOLUTION

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Loss of fluid in intestinal obstruction results from two developments following onset of the condition. First, frank loss of secretions occurs as a result of (*a*) vomiting, (*b*) stagnation of secretions above the level of obstruction and (*c*) suction or siphonage instituted when the patient is placed under management. Second, loss of income is sustained as a result of abstention from food and beverages.

The amount of loss in the first of these developments varies with the volumes vomited, stagnant in the intestinal lumen and aspirated by suction or siphonage. Whatever this volume may be, it is composed of water with organic and inorganic substances the most important of which is sodium chloride. The concentration of the salts in the gastrointestinal secretions is ap-

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proximately that of the same salts in the blood serum.[1] To compensate for this loss it has been suggested that 0.9 per cent sodium chloride solution be administered with a volume replacement equal to the volume lost.

The loss of fluid due to lack of income amounts to 2 to 3 liters daily. This amount affords 1 to 1½ liters of water for the adequate removal of waste materials in the urine (specific gravity 1.015 to 1.025) and 1 to 1½ liters for regulation of body temperature through cutaneous evaporation, perspiration and pulmonary ventilation. In any loss of fluids output of urine diminishes immediately, while regulation of body temperature remains active. This is made possible by use of the water reserves in the body. When the latter fails, hyperthermia and other evidences of hypohydration become manifest. Since under normal conditions this 2 to 3 liters is essentially water with a sodium chloride content of approximately 5 Gm., a parenteral replacement for this loss would be 2 to 3 liters of water (5 per cent dextrose in distilled water) with an addition of about 5 Gm. of sodium chloride (500 cc. of 0.9 per cent sodium chloride).

Thus, in intestinal obstruction part of the fluid required for replacement of loss is equivalent to 0.9 per cent sodium chloride solution, while the balance of the loss is water without sodium chloride. A solution containing 0.45 per cent sodium chloride and 2.5 per cent dextrose (an isotonic solution) would seem to be an appropriate solution for fluid replacement. This solution does not supply too much sodium chloride, nor does it fail to supply enough. Five liters of this solution for hydration would supply 22.5 Gm. of sodium chloride. This would be adequate for most patients with intestinal obstruction who have lost 2 to 3 liters of intestinal secretions, while awaiting relief from any method of planned conservative therapy or surgical therapy. If parenteral therapy is continued for several days the half strength solution would adequately supply the mineral needs while secretions are not being absorbed.

It must be understood that administration of fluid is not a substitute for surgical treatment in intestinal obstruction. Administration of fluid, however, does hydrate the patient, makes possible urinary excretion and regulates body temperature. The minerals in the fluids administered supply the electrolytes lost in the intestinal secretion and restore the blood levels of these elements to the normal. A judicious selection of isotonic solutions with and without sodium chloride would, of course, supply enough and not too much sodium chloride. However, the half *strength sodium chloride solution is an assurance that no excess* of salt would be administered.

Manufacturers of parenteral fluids have not included the 0.45 per cent sodium chloride in 2.5 per cent dextrose solution in their line. This solution has been used with satisfactory results for many years on many services at Cook County Hospital. Dr. Bernard Fantus advocated its use and pointed out the dangers of the continuous use of normal sodium chloride solution.[2] It would be a progressive measure if this solution were more readily available in all hospitals. It would permit the patient to be freed from the dangers of the excessive administration of sodium chloride, in a condition in which sodium chloride is of utmost importance. In addition, for the conditions in which little loss of sodium chloride occurs and water replacement is necessary this half strength solution presents a safety factor in that it does not supply too much salt.

Council on Pharmacy and Chemistry

The Council has authorized publication of the following reports.

Austin Smith, M.D., *Secretary.*

RECOGNITION OF ADDITIONAL GENERIC NAMES FOR COUNCIL-ACCEPTED PRODUCTS

In pursuance of its policy requesting the use of generic or unprotected names for products accepted for inclusion in New and Nonofficial Remedies under protected names, the Council asks the interested firms for suggestions, which are considered by the Council's Committee on Nomenclature and from which are chosen terms eligible for recognition. Recently the Council voted to recognize the following generic terms:

BISMUTH ARSPHENAMINE SULFONATE for Bismarsen-Abbott Laboratories.

ACETYPYROGALL for Lenigallol-Bilhuber-Knoll Corporation.

DIALLYLBARBITURIC ACID for Dial-Ciba Pharmaceutical Products, Inc.

IODINATED CASTOR OIL for Riodine-Gallia Laboratories.

PHENYLPROPYLMETHYLAMINE for Vonedrine-the Wm. S. Merrell Company.

BETETHAMINE for Monocaine-Novocol Chemical Mfg. Co., Inc.

SODIUM BISMUTH THIOGLYCOLLATE for Thio-Bismol-Parke, Davis & Company.

METHENAMINE TETRAIODIDE for Siomine-Pitman-Moore Company.

ALLYL BARBITURIC ACID for Sandoptal-Sandoz Chemical Works.

PSYLLIUM HYDROPHYLIC MUCCILLOID for Metamucil-G. D. Searle & Company.

Additional generic names will be published as soon as the Council has considered them.

GENERIC TERM FOR DIOCYL HYDROCHLORIDE: DICYCLOMINE HYDROCHLORIDE

The Wm. S. Merrell Company requested the Council's recognition of the proprietary name Diocyl Hydrochloride and the generic designation Dicyclomine Hydrochloride for β-diethylaminoethyl-1-cyclohexylcyclohexane-carboxylate.

On the basis of the information submitted by the firm, the Council voted to recognize the stated names as protected and generic terms, respectively, for this compound.

ALCOHOL-DEXTROSE and DEXTROSE-VITAMIN SOLUTIONS FOR INTRAVENOUS INFUSION NOT ACCEPTABLE FOR N.N.R.

Solutions for intravenous infusion of fluids, dextrose, salts or ions have been long established as a recognized form of replacement therapy in patients having a temporary deficiency of such essentials because of surgery or emergency illness. In the treatment of shock, the injection of crystalloids has been largely superseded by plasma or serum. For intravenous feeding, solutions of protein hydrolysate with dextrose are supplementing the use of dextrose alone as a source of caloric energy to sustain the nutritive requirements of such patients.

Recently the Council was requested to give consideration to a preparation of ethyl alchol 5 per cent and dextrose 5 per cent in isotonic sodium chloride solution for intravenous infusion postoperatively to provide the combined sedative-analgesic effect of alcohol with the caloric value of alcohol and dextrose in a single preparation. The Council was subsequently requested to consider a similar alcohol-dextrose combination, available in concentrations of either 5 or 10 per cent alcohol with 5 per cent dextrose in either distilled water or isotonic sodium chloride solution and with or without the addition of the vitamins, niacinamide, riboflavin and thiamine hydrochloride. The Council also gave consideration to a dextrose-vitamin mixture available in concentrations of 5 and 10 per cent dextrose with the same three vitamins in either distilled water or isotonic sodium chloride solution The evidence advanced in support of these preparations included reports from the medical literature on the use of alcohol for intravenous infusion as a postoperative sedative or analgesic and as an adjunct in the treatment of certain diseases, including delirium tremens. Other reports concerning the need for certain vitamins essential to the metabolism of carbohydrate and as an adjunct in the treatment of alcoholism were also submitted.

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[1] Gamble, J. L.: Express Cellular Fluids, Cambridge, Mass., Howard University Press, 1942.

[2] Fantus, B.: The Technic of Medication: Intravenous Osmotherapy, J.A.M.A. 87:411-413 (Aug. 7) 1926; Chicago, American Medical Association, 1938, chap. 8, pp. 490-495.

In reviewing the evidence for the submitted mixtures the Council found the reports poorly documented and the evidence unconvincing. With regard to the intravenous use of alcohol-dextrose preparations, it was pointed out that while alcohol so administered is not necessarily potentially dangerous, its peripheral vasodilatory effect could be deleterious in the presence of shock or impending surgical shock. It was considered that, although such a solution might conceivably be found useful when other narcotics were contraindicated, alcohol is also subject to the production of tolerance, leaves much to be desired as a sedative and is only a feeble stimulant of respiration. There are other methods of combating postoperative pain and restlessness that do not require the injection of large volumes of expensive solution. Concerning the caloric value of alcohol as a supplement to dextrose it was pointed out that while 1 cc. of absolute alcohol yields approximately 8 calories, the high specific dynamic action of alcohol would negate a fair amount of what is gained by its administration; furthermore, additional dextrose could accomplish the same purpose.

Claims for the intravenous use of alcohol in the treatment of pneumonia, pulmonary abscess or gangrene were held to be misleading. It was further indicated that the use of alcohol in the treatment of delirium tremens had been abandoned by many clinics because it constitutes no cure and does not relieve the disturbances associated with this disease any better than conventional methods of therapy.

The addition of vitamins to either alcohol and/or dextrose solutions for intravenous injection was held to represent a form of shotgun vitamin therapy that is overelaborate. It was agreed that although carbohydrate requires thiamine and riboflavin for its complete metabolism and such components of the vitamin B complex may have some use in overcoming deficiencies in alcoholic persons, it is not established that a single dose of either alcohol or dextrose, or both, requires the simultaneous administration of vitamins in the same solution. It was pointed out that patients receiving parenteral solutions of this type do so for the relatively short period of postoperative recovery, so that any acute deficiency of vitamins is not significant. It was emphasized that employment of such therapy presupposes that necessary amounts of the vitamins needed are not available within the body, a state of deficiency which is not established or likely in the conditions for which the solutions are proposed. It was further indicated that in prolonged undernutrition vitamins in larger amounts than are provided by ready-made solutions may be required, which need, can therefore be met by more rationally separate administration of the vitamins or their addition to a simple infusion solution in dosage requisite to meet the demands of such patients. The marketing of ready-made solutions containing vitamins was held to add materially to the cost for the patient and to serve no useful purpose.

The Council concluded that alcohol-dextrose and dextrose-vitamin solutions for intravenous infusion are not acceptable for inclusion in New and Nonofficial Remedies because they are unnecessarily elaborate and the claims for their use are not supported by convincing evidence of the need for or value of infusion of this type.

The drug will continue to be available only in capsule form for oral administration. Since it is important to hold narcotic administration to a minimum, to facilitate this and to permit adjustment of dose to the need of a particular case each capsule will contain 3 mg. of metopon hydrochloride. The minimal effective analgesic dose in nontolerant persons is 6 mg. Therefore, the dose is two capsules for persons who have not taken morphine and related substances previously, and it may be three or more capsules for persons already tolerant to morphine and the like. Institution of treatment with metopon hydrochloride in the latter group should be accompanied by rapid reduction rather than abrupt discontinuance of the previous medication.

The Committee on Drug Addiction and Narcotics of the National Research Council through its secretary (Nathan B. Eddy, National Institute of Health, Bethesda 14, Md.) will be glad to continue its correspondence with physicians in regard to their experience with metopon hydrochloride and to advise them on the use of the drug.

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

SULFADIAZINE (See New and Nonofficial Remedies, 1947, p. 120).

The following dosage form has been accepted:
McNEIL LABORATORIES, INC., PHILADELPHIA.

Liquoid Sulfadiazine: 120 cc. and 480 cc. bottles.

DIETHYLSTILBESTROL (See New and Nonofficial Remedies, 1947, p. 347).

The following dosage form has been accepted:
ESTRO CHEMICAL CO., INC., NEW YORK.

Solution Diethylstilbestrol in Oil: 1 mg., 2 mg., and 5 mg. per cc.; 1 cc. ampuls and 30 cc. vials in corn oil. Preserved with chlorobutanol 0.5 per cent.

NIKETHAMIDE (See New and Nonofficial Remedies, 1947, p. 260).

The following dosage form has been accepted:
PREMO PHARMACEUTICAL LABORATORIES, NEW YORK.

Solution Nikethamide 25% W/V: For oral use 15 cc., 45 cc. and 480 cc. bottles. For parenteral use 1.5 cc. and 5 cc. ampuls.

ESTRONE (See New and Nonofficial Remedies, 1947, p. 341).

The following additional dosage forms have been accepted:
PARKE, DAVIS & CO., DETROIT.

Solution Theelin in Oil: 1 mg. (10,000 international units) in 10 cc. vials in peanut oil. Preserved with benzethonium octyloxyacetate 1:4,000.

Aqueous Suspension Theelin: 1 mg. (10,000 international units) and 5 mg. (50,000 international units) in 1 cc. ampuls. Preserved with benzethonium octyloxyacetate 1:4,000.

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SATURDAY, MAY 29, 1948

EDITORIAL ANNOUNCEMENT

The absence of the compositors from their work continues. This issue of THE JOURNAL has been prepared in part by the use of Vari-Typer machines.

MEDICAL RESEARCH

Volume five of the Steelman Report on "Science and Public Policy" concerns itself largely with the manner in which the federal government can most effectively promote and encourage scientific research on medical problems. The nation invests some $110,000,000 annually for scientific research and development in medical and allied fields as contrasted with ten times that amount for all other forms of scientific inquiry. The Committee on Medical Research of the Office of Scientific Research and Development devoted its attention to the solution of practical problems. Establishment of a committee composed of government and nongovernment medical scientists has been recommended to suggest a comprehensive program to utilize most effectively all the nation's resources. Recommendations are that funds be distributed for basic and applied research and for training of investigators. Expenditures for medical and allied research, according to the Steelman report,[1] should be at least tripled by 1957 to not less than $300,000,000 yearly.

Of funds from all sources devoted to medical research in 1947, industry contributed 45 per cent, federal, state and local governments 28 per cent and foundations 13 per cent. Comment was made that the private foundations such as the Rockefeller Foundation, Commonwealth Fund, the Kellogg Foundation and the Milbank Memorial Fund, which have contributed so greatly to medical research in the past, seem to be contributing less to the postwar requirements. According to the report, dissipation of their capital resources probably will continue and may mean their eventual dissolution. Universities and medical schools which provide the country with physicians and investigators have felt the pressure of declining endowment funds and are looking for new sources of support not only for research but for general administrative purposes. A recent survey of twenty-eight university medical schools, it was stated, showed one-fourth of them to have no money for research from any source. One obvious conclusion drawn from this was that the federal government should give support to these institutions not in the form of specific grants for specific purposes but in the form of general funds to be used by the medical schools as decided by their administrations.

The serious problem of shortage of personnel and facilities in an expanding program was analyzed, and effects of the unwise policy of neglecting the training of scientific personnel during the war was noted. In 1940 there were graduated as Ph.D's 21 in anatomy, 59 in bacteriology, 130 in biochemistry, 70 in physiology and 112 in zoology. In 1945 graduates in these fields decreased to 4, 27, 83, 25 and 27, respectively. Competition for medical investigators from industry and government is a serious and continuous threat, constituting a sort of interuniversity cannibalism. The crisis in the medical schools is attributed by the report to the mounting cost of operation and lack of an adequate program to cope with these problems. Schools are required to increase the teaching load, to increase student fees and to diminish space for research.

The report deals with the organization and administration of government-supported medical research, pointing out the necessity for preventing duplication of effort among the several agencies of the government that support research. In order to avoid such duplication it was recommended that a subcommittee of the Interdepartmental Committee on Scientific Research and Development be established for medical research, composed of representatives of federal agencies and research scientists from outside government. These representatives should be chosen from among professional research workers who are informed on research and its problems and on the requirements of fundamental research, applied research and development. This should apply equally to clinical research, psychologic and sociologic investigation and laboratory work.

Attention is called to the several advantages offered by the government to research workers who are federal employees, i.e., job security, vacations and sick leave with pay, increases in pay and well established retirement benefits.

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[1] Guzman Barron, E. S.: The Nation's Medical Research, Bull. Atomic Scientists 4:59-60 (Feb.) 1948.

Medical research projects supported in outside institutions by federal agencies are devoted to problems defined by the supporting agencies or chosen by individual investigators and supported by the National Institute of Health or the Office of Naval Research. In the latter cases, outside experts analyze the projects and advise approval or rejection.

The close correlation between the institutions represented on the study sections of the National Institute of Health and the location of approved projects was noted. More than one fourth of the five hundred and forty medical research projects supported by federal agencies in outside institutions during the fiscal year of 1947 were located in seven medical schools in the northern and eastern parts of the country. " Unless a conscientious effort is made to spread some of the available project money among little known institutions, there is little likelihood of expanding the number of medical research centers and capitalizing fully on the potential of research manpower."

The major question in the problem of improving medical research throughout the country is that of fellowships, postdoctorate and predoctorate. A number of organizations give the former type, but only the National Institute of Health subsidizes graduate students interested in becoming research scientists. In a plan to deal with the nationwide shortage of medical scientists the report lists these recommendations: *(a)* triple the number of fellowships in medical and allied sciences; *(b)* increase the fellowships' stipend; *(c)* give special emphasis to areas of shortage, *(d)* put the task of selecting and alloting funds for fellowships in the hands of persons responsive to both executive and legislative controls; *(e)* give careful consideration to the need for undergraduate scholarships in the basic sciences related to medicine; *(f)* make the whole program of the federal government flexible enough to allow shifts in emphasis between research fellowships and project research as needed, and *(g)* give encouragement to fellows to return to their original institutions with the hope of developing subsidiary research and training centers.

In most respects the report is well conceived and the recommendations, if carried out, would help to expand and improve medical research in the United States. However, much additional stress should be placed on medical research from the personal point of view. The concept of the starving scientist so devoted to his work and to the benefit of humanity that he can afford completely to neglect monetary considerations has become a part of the accepted pattern in this field; sufficient consideration has not been given to it as one of the major problems of obtaining research personnel. Many brilliant and promising young scientists have through force of economic circumstances and disgust with the paltry income associated with research given up research to enter more lucrative fields. The maximum fellowship stipend now offered by the National Institute of Health is $3,000 per year for a person with dependents. Research and teaching fellowships in universities average less than $4,000 per year. These sums attract few men of the caliber needed to improve and expand medical research in the United States. Medical research in industry and in government services has been chiefly of the applied or developmental type. The first inclination of sponsors has been to support research that would soon prove useful or adaptable clinically. More recently, however, a shift toward research in cancer and some of the more recalcitrant, degenerative diseases represents a triumph of scientific curiosity over utilitarianism. In the basic sciences, anatomy, physiology, embryology, bacteriology and genetics, tall towers of knowledge have been erected. In few instances, however, can we fit our basic knowledge in these spheres to the simple logic of figures or formulas, the measure of a true science.

With the funds hopefully forthcoming, increased numbers of well paid, trained scientists should make rapid strides in the basic sciences. Team methods developed during World War II give much promise and should overcome many of the deficiencies of the individual approach.

SCURVY AND RICKETS ARE STILL WITH US

The clinical application of fundamental principles of nutrition is not abreast of increasing knowledge of nutrition. Infants with rickets or scurvy still appear frequently in the pediatric clinics of many of our teaching institutions. Recently a relatively small pediatric service admitted 3 infants with frank scurvy in as many months. The gratitude of the teaching staffs for such teaching material is exceeded only by the embarrassment of rationalizing the occurrence of such cases to the medical student. From his earliest days in medical school, the modern student has been taught that prophylactic administration of vitamins C and D should reduce scurvy and rickets to obsolescence.

Association of scurvy with poverty, malnutrition and lack of medical care is no longer entirely valid. Many recent cases have arisen in families of moderate economic circumstances and have demonstrated optimal gains in length and weight. Usually patients have been observed at regular intervals by physicians. Factors other than parental ignorance or economic circumstance must be at fault.

Almost uniformly these infants have been fed on proprietary preparations which are often represented as "complete infant foods." Indeed, the rapid gains in length and weight testify to the completeness of these foods—with the exception of vitamins. Because growth is occurring rapidly during infancy, requirements for vitamins must be fully satisfied; growth will cease if these demands are not met. As these preparations are usually fed under the direction of a physician, he must assume the responsibility of ascertaining specifically the vitamin content of these preparations in relation to the specific needs of the patient, regardless of the claims of the manufacturer concerning the completeness of the food. Reliance on such preparations for appropriate intake of vitamins is unwise since quantities of the product fed from day to day and from patient to patient are highly variable. Oliver Wendell Holmes said, " A pair of substantial mammary glands have the advantage over the two hemispheres of the most learned professor's brain in the art of compounding a nutritive fluid for infants." Perhaps in these days when hypofunction of the postpartum breast is a national phenomenon, refuge in the cerebral hemispheres of the learned physician is necessary. Fortified with adequate knowledge of nutrition, he can eliminate scurvy and rickets from the American scene.

Current Comment

VITAMINS OF THE " B " COMPLEX AND RESISTANCE TO MALARIA

The effect of a vitamin deficiency on resistance to infection appears to be dependent on the relative requirements of the infectious agent and of the host for the particular vitamin. If the invading organism requires larger amounts of the vitamin than the host, deficiency of the vitamin appears to increase the resistance to the infection; if, however, the host requires the larger amount of the vitamin, deficiency decreases the host's resistance. Increased resistance to malarial infection is found in deficiencies of both riboflavin and pantothenic acid in chickens and in lack of ascorbic acid in monkeys. Deficiencies may be produced not only by low levels of the vitamins in the diets but also by the administration of analogous compounds which antagonize the vitamins; one of these compounds, pantoyltauramido-4-chlorobenzene, has been found to be four times as effective as quinine in the treatment of a standard four day trophozoite-induced infection.[1] This analogue of pantothenic acid inhibits only the blood phases of the infection; either the tissue phases apparently do not require pantothenic acid or there is a sufficient small amount in the tissues. Deficiency of other vitamins, such as nicotinic acid and biotin, is accompanied by a definite decrease in resistance to the malarial organism. The cause of the diminished resistance in biotin deficiency has been investigated and found to be due to decreased formation of an active antimalarial factor, lipid in nature and associated with the serum proteins.[2] Injection of plasma protein fractions rich in this factor inhibit the multiplication of the malarial parasite. This substance, which is formed only when the diet contains biotin, will replace biotin on a biotin-deficient diet, although it does not have the chemical properties of biotin. Further studies on the nature and properties of this anti-infective agent will be awaited with interest.

THE PROGRAM OF THE NATIONAL CANCER INSTITUTE

The functions of the federal government in research and control of cancer were outlined in the National Cancer Institute Act of 1937, which created the National Cancer Institute and the National Advisory Cancer Council. In July 1947 the National Cancer Institute was reorganized to provide for effective integration of a much expanded program.[1] The activities of the institute were divided into three major fields: scientific research within the institute, research grants to outside institutions and cancer control. The institute's total appropriation for the fiscal year 1948 is $14,000,000. Some of the technics employed in the study of cancer by the biology section are artificial production of cancer in experimental animals; study of tumors grown within a transparent chamber attached to the living animal, and growth of animal tissue in vitro. This section is also engaged in establishing procedures for the isolation of tumor-inducing viruses. Grants have been awarded for the work of one hundred and ninety-two different investigators in eighty-eight institutions, mostly universities or hospitals with research laboratories. The institute also awards research fellowships to increase the number of trained scientists from whose ranks men and women may be recruited to staff the laboratories in which research on cancer is conducted. There were one hundred and nine research fellows on duty Jan. 1, 1948. The program recognizes that the key figure in cancer control is the physician. Every effort is being made to provide the members of the medical profession with opportunities for training in the diagnosis and treatment of the disease. A grant-in-aid program has been undertaken to enable medical schools to develop better integrated courses in cancer for their students. Grants to forty schools, amounting to approximately $900,000, had been recommended up to Jan. 1, 1948.

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1. Brackett, S.; Waletsky, E. W., and Baker, M.: J. Parasitol. 32: 453, 1946.

2. Trager, W.: J. Exper. Med., 85: 663, 1947.

1. The Program of the National Cancer Institute, Pub. Health Rep. 63:501 (April 16) 1948.

ORGANIZATION SECTION

NATIONAL CONFERENCE ON RURAL HEALTH

Third Annual Meeting, Palmer House
Feb. 6 and 7, 1948

(Continued from page 777,
THE JOURNAL, MARCH 13, 1948)

Dr. F. S. Crockett, Presiding

Rural Public Health Organization

Panel Discussion

MRS. GLADYS TALBOTT EDWARDS, Director of Education, Farmers Educational and Cooperative Union of America, Denver: The National Health Program of the American Medical Association states that every child should have proper attention, including scientific nutrition, immunization and other services included in infant welfare. No one would disagree with that statement, and many believe that every child should have more than this in health care. They feel that health is a public responsibility just as education is. This must be true for the Negro child in rural areas as well as for the white child in rural areas. It has too long been taken for granted that farmers are healthy because they have plenty of fresh air and sunshine. We have closed our eyes to the fact that poor housing, poor ventilation, poor nutrition, contaminated water and milk supply and a lack of insect and rodent control can almost completely offset the fresh air and sunshine.

At a recent health workshop held in Aberdeen, S. D., about two hundred farm people gathered to discuss their health needs. Under the heading of public health needs were listed five major items: (1) a need for district public health units and facilities; (2) better nutrition including a high school lunch program; (3) better housing; (4) a safety program for accident prevention, and (5) an over-all recreational program. It was taken for granted that the public health service would supply the following: prevention and control of communicable diseases by immunization; x-rays; tuberculosis and venereal disease and cancer control; maternal and infant care clinic, and a program in sanitation. These needs were listed by farm people. No experts from the government helped to list these needs. The people knew the lack of a public health program from bitter experience. Extending public health care to rural America is one of the most important tasks before us today. With public health care must go a program of education and preventive medicine, some plan for paying the cost of illness and accidents to farm people.

DR. FLORENCE R. SABIN, Chairman, Interim Board of Health, Denver: In Colorado there are sixty-three counties, eighteen of which have preventive medical services. The eighteen counties include those with large cities, so that one half of the population is really covered with preventive medicine. The rural areas still need to have basic health services set up, the fundamental things, the things that have to be proved over and over again to be of real value to the people.

I want to stress the basic services that should be given to the people of rural America. There are six of them well known to everyone working in public health.

First, the control of communicable diseases: We still have 150 cases of diphtheria per year in Denver. Diphtheria is an outstanding example of the diseases which can be controlled. Our school children are protected. It is the preschool child who is not protected in a backward state. Second, environmental sanitation: Each county, each district, each group of counties needs to have good sanitary inspection. We have just begun these services in Denver. It is an educational program to teach persons in occupations that affect the health of their neighbors how to work in an expert manner and, from the standpoint of health, in a clean manner.

The program is difficult because it involves training adults to break habits that are bad. When you set up your services, don't expect your health officers to do this difficult job in a short time.

Third, laboratory services: Every health department needs the division of laboratory services. It is especially important to get adequate laboratory services on the western slope. Colorado is divided by the Continental Divide, and by the time one gets materials and reports back from the state laboratory it is sometimes too late. It is essential for us and probably for other states to have well developed laboratories scattered through the state.

Fourth, vital statistics, keeping adequate birth and death records. Fifth, the division of hygiene, maternity, infancy and childhood: It is vitally essential that this group have the most adequate health preventive services. There are special rural problems that I want to stress. First, this problem of animal diseases, for instance, brucellosis. A survey in Michigan showed that each cow infected with Bang's disease produced about 2,000 pounds less milk per year than a normal cow, and it was estimated from the number of diseased cows in Michigan that there was a loss of 222,000,000 pounds of milk per year.

Our loss in Colorado on the same basis is 37,000,000 pounds of milk per year. The figures for the United States must go into the billions. What might that milk mean to the welfare of the world?

The next rural problem is rodent control. We have now in Colorado an expert who, for the first time in all history, cleared out the rats for our stock show, a big event in Colorado. Not a rat was there. We know how to do it.

Rural Dental Health Problems

Dr. LON W. MORREY, Editor, Journal of the American Dental Association, Chicago: At least 95 per cent of the American people suffer from some form of oral infection. Studies indicate that American children between 6 and 18 years of age require about 244,000,000 fillings to place their mouths in a healthy condition and that once this backlog of accumulated need is met dentists would have to insert an additional 33,000,000 fillings per year to fill the annual increment of cavities in that age group. Cavities develop in children's teeth at a constant rate, 1 carious tooth every sixteen months, or three quarters of a tooth per year. Among adults there is an average need for 4.5 fillings and more than two extractions. About 1 of every 4 adults needs one or more bridges, while 1 of every 6 requires full dentures.

The few studies that have been conducted to show the relative incidence of dental disease in rural and urban areas indicate that there is little difference between urban and rural dwellers as far as the incidence and prevalence of dental caries is concerned. This is not surprising, as both groups are exposed equally to the conditions that cause dental caries. Most research workers agree that decay of the teeth is caused by the overconsumption of carbohydrate foods, particularly sugars. City and farm dwellers set essentially the same table, and both consume a larger quantity of sugar than in previous years. There is little likelihood that the American people will reduce their consumption of carbohydrates, even though they know that caries will result. Until some simple measure is discovered that will counteract the caries-producing effect of sugar both urban and rural dwellers must resign themselves to the discomfort and dangers of dental disease or avail themselves of early and regular dental care.

The unequal distribution of dentists in Illinois is typical of a condition that exists in most states. A study made by the Committee on Economics of the American Dental Association showed 6,116 dentists licensed to practice in Illinois, or approximately 1 dentist to 1,300 persons. The distribution of dentists in this state, however, is decidedly uneven. The Chicago metropolitan area has over 9 dentists per ten thousand population, while the southern section of the state has but 3.5 dentists for the same number of persons. This uneven distribution of dentists exists in practically every state. There is strong tendency for recent dental graduates to return to their home communities to practice. Since the majority of dental students come from metropolitan areas, the majority of dentists locate in those areas, with the result that some cities have more dentists than are needed and many rural areas have too few. For some unknown reason, few rural students are attracted to dentistry.

Between 1930 and 1944, dentistry graduated about 1,700 students annually and the profession lost about 2,200 dentists per year through death and retirement. During the two years since 1945 dental schools in the United States have graduated about 2,600 dentists per year, and there is every prospect that our forty schools will be filled to capacity for several years to come. However, even though dentistry is able in the future to graduate 2,600 dentists per year, this number is not sufficient to replace those lost annually and to take care of the increasing demands for dental service. Furthermore, the slight increase in the number of dental graduates for the past two years is not in proportion to the increase in the population.

The American Dental Association fully recognizes the problems involved in improving the dental health of the American people, and the association is attempting to meet those problems by encouraging: (1) dental research; (2) educational programs that will motivate persons to avail themselves of early and regular dental attention so that they may avoid expensive restorative service, and (3) dental service programs for those who cannot provide service for themselves, particularly service programs for children, as dentistry for children is the best method known to control dental caries. The dental association is attempting, through its state and local societies, to encourage more qualified young men and women from rural areas to enter the profession. Until our dental educational facilities are expanded the number of dental graduates each year will be inadequate to meet dental demands. The association is encouraging the establishment of additional dental schools. There are prospects that two, or possibly three, new schools will be established in the near future; even so, the additional number of graduates will in all likelihood be insufficient. Therefore, the association recommends the employment of more qualified ancillary personnel. It is encouraging the expansion of educational facilities for the dental hygienist and the dental technician, and it is encouraging the employment of more dental assistants.

Finally, the American Dental Association, through its Council on Dental Health, is encouraging the establishment of state and local councils on dental health. These councils, composed of representatives of dental, medical, educational, civic and other lay groups, are stimulated to study local dental health problems to analyze needs and then develop a practical community dental health program. Representatives of farm groups should become active members of the local dental health council. No one dental health program for the United States will ever be satisfactory. Each community, whether it be rural or urban, must understand its own problem; recognize its own needs; evaluate its personnel, facilities and funds, and determine its own desire to improve its own dental health. Even though the obstacles may seem insurmountable, most communities, armed with these facts and motivated with a determination to reduce dental disease, can develop a dental health program which, even if not adequate, will be a decided improvement over the one that now exists.

Discussion

DR. ETHNA B. WINSTON, South Carolina State College, Orangeburg, S. C.: Is there any arrangement whereby a cooperative plan may be provided for the training of persons to do the health services, whatever they may be, other than or in addition to physicians and dentists, particularly in the rural areas.

DR. CROCKETT: That is an interesting question, and something must be done. Just how it should be done is beyond my experience.

DR. FLORENCE SABIN, Denver: The facilities for training persons in public health are meager anywhere, except in the eight or nine basic schools. We have no school in the Rocky Mountain area for training public health workers. We hope to establish one. The medical school has a course for undergraduates in medicine in public health, and Negroes are admitted to our medical school.

DR. A. W. BROWNING, Elloree, S. C.: It has been said that doctors down south do not treat the Negroes. One half of my work is with Negroes. I believe it was last year or two years ago that I drove 7 miles in a buggy and 2 miles on dirt road to a Negro house to give treatment. In our section we don't refuse treatment. I just didn't want anybody to say we didn't treat them.

J. S. JONES, St. Paul, Minnesota: Dr. Sabin elaborated on brucellosis as an economic scourge to the animal industry. Would you please elaborate on the parallel cause of undulant fever to human beings?

DR. FLORENCE SABIN, Denver: Dr. Stiles, who has now come into the Colorado state department of health, is trying to get accurate data on the amount of human infection. It is a difficult task. Accurate data is obtained by making the agglutination test and getting the history of every single patient as to whether he had any vaccination or not. As far as the skin test is concerned, Dr. Darling, who is here at this conference, made an estimate that about 15 per cent of the inhabitants in Colorado have a positive skin test. Of course, that doesn't indicate the amount of infection. Those of us in public health believe that the amount of true infection is greater than is commonly recognized. We still await accurate data.

MRS. JEROME EVANSON, Jamestown, N. C.: Dr. Sabin, how do you get personnel for your public health district units? In North Dakota we are ready to move out in district units in every county in our state, but we are told we cannot get personnel. One more question. When we cannot get the full time service of a public health physician for our district, would you recommend that we take the part time services of local physicians?

DR. FLORENCE SABIN, Denver: I am convinced from the little that I have seen, and I am only a novice in this public health work, that specific training in public health is tremendously important. That was why I stressed the big educational problem. I believe that training in public health teaches the worker how to get people to cooperate. It is really a matter of expert education.

DR. BEAUDRY, Montreal, Canada: Emphasis has rightly been placed, since the beginning of this conference, on preventive medicine. But I would like to dwell on the problem of tuberculosis. In the United States the mortality rate has been reduced to 35 for hundred thousand population, and if the trend keeps on going for a few years more, it is thought the mortality will come down to 15. This is wonderful work, but what about the lives which are still lost through tuberculosis? The answer is simple, because we have BCG vaccine for use against tuberculosis. This has proved of value in contaminated families. A doctor in Montreal and a doctor in Saskatchewan have obtained 70 per cent reduction in infected families where the children have been given the vaccine at birth. This has been done while the children were not separated from the infected patients, but when this separation is made, as we have done in close to 1,000 newborn children in Montreal, the reduction has been close to 100 per cent. Vaccines are being studied at present in this country by the U. S. Public Health service. We hope that the United States will come in line with other countries which give the opportunity to all physicians to use the vaccine.

DR. M. P. NEIL, Columbia, Mo.; I cannot allow the question of undulant fever to go unchallenged. I am sure Dr. Sabin will agree that the skin test is no more diagnostic of brucellosis than a skin test is diagnostic of tuberculosis. I am sure all who are familiar with the disease agree that the agglutination test is not a conclusive diagnosis of undulant fever. There is one absolute diagnosis, and that is recovering the organism from the blood.

DR. FLORENCE SABIN, Denver: I agree, and it is well known that a patient or an animal may have a negative agglutination test, and the next day the organism may be recovered from the blood. We should go on and eliminate this disease from the animals that are the source of the infection.

DR. D. G. MILLER JR., Morgantown, Ky.: During the war when the state health department in Kentucky was weighed down with selective service examinations, there was an incidence of brucellosis of about 5 per cent positive agglutination. Another problem that must be contended with is means to stop transportation of the infected cows over the state line. I know of 25 or 30 cows that have been brought into Illinois and sold from my own county in Kentucky because the owners could sell them as high grade milk cows in Illinois but didn't dare try to do that in Kentucky. They have taken animals to Alabama, Missouri and Tennessee in that area. I further know that these small milk producers go to the stockyards and buy these cattle and start putting the milk in the pool which they offer for sale without testing. When the veterinarian catches them, they take the cow out. That cow's milk may be sold for weeks before the cow is tested for brucellosis or tuberculosis. That is one phase of the problem for which we are going to ask for help. I am opposed to federal aid, but this is one time when we should have it.

MISS JUNICE DALEN, Willmar, Minn.: I would like to know if the American Medical Association is in favor of having these public health units set up on a county basis or a multicounty basis, and second, if so, are we to understand that they will give active support for legislation which will help us get the public health service? We had a bill introduced in the last session of the legislature which was defeated, and we are going to introduce it again at the next session.

DR. CROCKETT: The American Medical Association was among the first a hundred years ago to champion public health and the creation of a public health service, and they have consistently championed that idea. The American Medical Association speaks merely on a national level. It does not go into any state and tell a state group of physicians what they must do. It does stand for the very best in public health service.

J. S. JONES, St. Paul, Minnesota: The state medical society has endorsed the program in Minnesota and is active in promoting it at present. There was some misunderstanding in the last legislature. I would like to mention public health medical personnel and public health institutions for tuberculosis and institutions for the care of the insane. If you want good personnel in these fields, you cannot simply rely on education. You have to change the thinking of our people so that personnel can be employed in those institutions at a level of pay comparable to that of a practicing physician. In the past year, we have had three trainees' funds to pay a physician $300 per month if he would go to school and learn public health. We couldn't get a taker.

DR. FLORENCE SABIN, Denver: In our state medical association we had the full cooperation of our physicians. We had the same experience. Our bill failed one year; the next year we all got together, and the public health people and the medical profession wrote the bills together. We each made some concessions in writing the common bills, which then were presented to the legislature with the backing of the public health services and the physicians who went to the legislature and fought day in and day out just exactly as hard as the public health people. The point is to get cooperation long before your state legislature meets.

We have the same problem with regard to salary in Colorado. We got the salaries in Denver up to fairly adequate levels. It is terribly hard to get the state salaries up. You simply have to educate your total population and get across to the people that it is worth while to spend money for health.

MISS MARGARET STEIN, Washington, D.C.: Dr. Crockett, would the American Medical Association support federal legislation granting funds to the state to provide more public health units and serve the 30,000,000 persons not covered by full time health departments? To my knowledge there is no such legislation. However, it has been recommended occasionally before committees.

DR. CROCKETT: Federal money is available, I believe, to the state public health departments for certain definite purposes. The policy, if it has not been settled by the American Medical Association, would be a matter for action by the House of Delegates. They are the only group within the profession that would be qualified to set a policy.

DR. ROBERT E. ARCHIBALD, Melrose, Mass.: I have a few copies of a proposed bill that it is hoped will be introduced in Congress this year to get an appropriation to be used entirely for the development of local health units and the training of personnel.

Olmsted County Child Health Project

DR. FLOYD FELDMAN, Director, The Rochester-Olmsted County Health Unit, Rochester, Minn.: The title on the program is misleading, as there is no Olmsted County Child Health Project. There is a Rochester Child Health Institute, which was formerly called the Rochester Child Health Project. This institute has limited its research program to the city of Rochester, but its services reach all parts of Olmsted County.

The Rochester Child Health project began operations in January 1944. It has two purposes, research and service to the children of Rochester. This project, headed by Dr. C. Anderson Aldrich, is attempting to provide the best maternal and child health supervision possible for mothers and their babies born in Rochester. The staff has grown to include an assistant director, psychiatrist, two psychologists, nutritionist, director of preschool activities and a statistician.

The Child Health Institute plans to carry its observations and supervision from the prenatal period to adult life on every baby born in Rochester. The city health department, the city public schools, the county board of commissioners, the state board of health, the W. K. Kellogg Foundation and the Rochester Child Health Institute all contribute funds and services. To bring them together, the Rochester-Olmsted County Health Unit was formed, with an administrative council and an advisory committee. The health unit is not an official governmental entity but a voluntary group, without funds of its own, for the sole purpose of coordination. The city health officer is permanent chairman of the administrative council.

Three half-day prenatal clinics are conducted each week at the Rochester City Hall for rural and city patients. The clinics are conducted by fellowship physicians from the Mayo Clinic. During 1947, 114 patients from the city and 127 from the rural area attended these clinics. In the same year there were 708 births in the city and 506 in the rural part of Olmsted County. The public health nurses made 1,125 home visits to these women last year before their babies arrived.

At the time of delivery in the hospital, a record is started which is expected to follow the child to maturity. The mother is instructed in the care of her baby and what she can expect in the way of normal behavior and development. Every effort is made to encourage breast feeding.

For children born at home under the care of the few private practicing physicians, and 13.6 per cent of the rural resident babies are born at home, this period of training and instruction must necessarily be more limited. When the baby and mother are ready to go home, the hospital notifies the public health nursing service, and a home call is made immediately to get the mother started on her routine. Subsequent home calls are made when necessary, but most supervision is carried on through the child health clinics. These clinics are closely supervised. The rural clinics are held at different centers at such intervals as to provide a monthly clinic to any one area. The same physicians work in both rural and city clinics, although only the city children belong to the institute research group. Mothers are encouraged to bring babies in once each month for the first year, then every two months until 18 months of age, every three months until 2 years of age, then every six months until school age. Immunizations are started at 6 months of age for whooping cough, smallpox, diphtheria and tetanus. Under the direction of the Child Health Institute, a local lay board conducts several nursery schools for the preschool children who need such experience. There are not enough preschool classes to meet the need, but more are being organized. Unfortunately, none of these are operating in rural areas, where they are probably as much needed as in the city.

The Rochester Child Health Institute furnishes many services in the school health program. In the city, physical examinations are given to all entering children, all those referred by nurses and teachers, and those in the fifth, ninth and twelfth grades. These examinations are preceded by teacher-nurse conferences, vision tests, height and weight measurements and planning conferences. Although no free medical care is given through the schools, most of the significant deviations from the normal are taken care of through the parents' private initiative and funds or with the help of welfare agencies and service clubs.

An immunization program for smallpox, diphtheria and protection against tetanus is offered in the schools each year for additional protection of those given inoculations in infancy.

The dental program has as its aim the annual examination by a private dentist of every child over 3 years of age. Cards are given to the school children to be signed by the dentist and returned. Results vary from 100 per cent in some schools to few or none in others. Reasons for low percentages in certain schools are now being investigated.

A special roster of crippled children is maintained so that no child will be neglected, and the many orthopedic services available here have been fully used. A complete register of tuberculosis cases and contacts is maintained. Roentgenologic and tuberculin tests are offered at little or no cost. The county, with seven others, maintains an excellent sanatorium which has enough beds for all active cases. A counseling clinic for those of all ages with a psychiatrist in charge has been operating now for seventeen months. The city restaurants are regularly inspected and utensils cultured. A survey completed recently gave our eating and drinking establishments an average rating of 72 per cent, according to the code of the U. S. Public Health Service. Rural milk supplies, water supplies, rural eating and drinking places and the rural schools have had little sanitation service, and the need is great. In 1947, the expenditures for these were as follows:

Rochester Board of Public Health and Welfare	$38,618.51
Rochester City Schools	$12,108.22
Olmsted County Board of Commissioners	$ 6,093.94
Minnesota Department of Health	$ 7,620.14
University of Minnesota	$ 1,424.75
W. K. Kellogg Foundation	$18,716.65
Mayo Clinic	$ 1,674.18
	$86,256.39

This amounts to $1.66 per capita, not counting the services furnished by the Mayo Clinic and the Rochester Child Health Institute. As judged by a maternal mortality rate of 0 per thousand births and an infant mortality rate of 17.3 per thousand births, we can look forward to greater reductions in morbidity as well. One of our greatest hopes is that a modern approach to health supervision of the child will materially lessen the numbers of poorly adjusted children with a consequent decrease in child delinquency and adult mental disease.

Rural Youth Looks at Health

MR. EDWARD H. MERTZ, Executive Secretary, Farmers Educational Foundation, Denver: For the first time in this series of health conferences we have brought in with us the farm young people. My colleagues in this panel represent the American Farm Bureau Federation, the

National Grange, the National Milk Producers Association and the National Farmers' Union. These farm organizations are members of the Rural Medical Service Advisory Committee of the American Medical Association.

These farm organizations propose various programs to provide better health services for rural people. We are not confined in our thinking to the organizations which we represent or to the areas represented by members of this panel. We are talking about the problems of the 6,000,000 farmers in America and the 30,000,000 persons who make up these families. We know that 40 per cent of the wives of farmers of low income have neglected childbirth injuries; 10 per cent of their children are seriously underweight, 48 per cent have defective tonsils and 65 per cent have decayed teeth; 14 per cent of all farm mothers have no hospital care when the babies are born. We know that regardless of what you call the process, over half of the young men from farm homes were rejected by selective service. As citizens representing farm youth, we have a responsibility to build a strong America. We shall try during this panel to analyze the causes of this unhealthy rural America and explore the way that persons in rural areas might provide themselves with adequate health services.

The first presentation of this panel will introduce the general problem, and the second and third presentations will give you a background of what farm organizations are doing, and the final presentation will give you a picture in terms of program and philosophy of what rural residents think that we should be doing.

It was difficult to arrange this panel in the strict sense of the word as these folks live in four states and, unfortunately, I live in another one. Arrangements were made by correspondence up until 11 o'clock last night.

MISS RUTH PARSONS, Chairman, National Rural Youth Committee, American Farm Bureau Federation, Fowlerville, Mich: Rural health is not just a problem of the American Medical Association. It is the problem of everyone, and as soon as everyone becomes aware of that, something will be done about it. With lay persons assuming more of the responsibility in getting these facilities for improvement of rural health there may be some difficulty in understanding the way that it should be brought about. The farmer has a most intricate profession, one that requires ablebodied and mentally alert workers. The best crop raised on the farm is the children. One hundred thousand persons in a certain city in one generation failed to reproduce themselves by 33 per cent; yet the cities are growing larger. Where are the people coming from? The urban areas are failing to reproduce themselves by 26 per cent and the rural areas are overproducing by 44 per cent. We figured out the health problems, which the rural residents classified in four groups: (1) nutrition; (2) poor health education; (3) lack of health units and hospitals, and (4) that rapidly decreasing person, the general practitioner. Unless the farmer's wife knows why her family should have vegetables and fruits and which ones and how often, those on the farms are going to eat what they do now: meat, potatoes and sweets. She has to know how to pick foods that have the highest food value. There is a serious lack of community health services. Two fifths of the counties are without a full time health department. In our community they are trying to get one started. Only three fifths of the counties have registered hospitals, and most of the hospitals are concentrated in the urban areas. Those in rural areas are not equipped as they should be. Michigan pioneered, I believe, a great deal of the work in both the medical groups and the farm bureau in getting the Blue Cross Hospital Plan. The farm bureau in that state offers all members drastically reduced prices, and this is doing a good deal to improve conditions. The Hill-Burton Act will increase the amount of hospitals in the rural area. One would think that in view of those facts there would be more physicians in the rural counties. Only one of a graduating class of young physicians is going to settle in a rural area. Is it the fault of the medical schools? Do they advocate specialization? Is it the fault of the physician? I don't know whose fault it is, but it is something that will have to be changed. I was going to tell you what the Junior Farm Bureau does. It is made up of representatives of the midwest section, who have worked for community health centers. One county has started the groundwork for a hospital. Most of the counties do similar things. They work in their own area rather than on a statewide basis. I hope that this is not just a discussion, but that a great force for the improvement of rural health will come out of it.

MISS MARTHA KOHL, Secretary, Genesee County Chapter, Dairymen's League, Corfu, N. Y.: There was a time when living in the country was considered especially healthful and was presumably the best way to raise children. But one fourth more rural babies than urban infants die in their first year. The rural child runs a greater danger than the urban child of dying from measles, scarlet fever, whooping cough and other diseases frequent in childhood, which modern medicine is quite successful in preventing. Perhaps the rural people should accept the blame for these conditions. We have never provided a plan to make preventive and curative medicine readily available to everyone. We have left pretty much to chance the distribution of doctors, dentists and nurses. We have left to the doctors the entire responsibility for providing their own equipment. Often we have left even the building of hospitals to the medical profession. Forty per cent of the 3,070 counties in this country have no hospital worthy of the name. The cities average a physician for every seven hundred persons, while rural communities average one for seventeen hundred persons.

But statistical averages do not tell the whole story. They mean little to the residents of Dubois, Wyo., who are 78 miles from a doctor. In 1944 every ablebodied physician in Taos County, N. Mex., had 6,134 potential patients, as shown by a check of the Farm Security Administration. Such conditions can be corrected through the Federal Hospital Survey and Construction Act if the rural people accept the responsibility and make the most of this opportunity. The lack of sanitation facilities presents a problem. Recently, the entire supply of drinking water in a neighboring village was found to be contaminated. Authorities believed that the improper disposal of sewage was the cause of the trouble. A program to inform rural people of the importance of this problem is necessary as the population of these areas is constantly increasing.

Accidents on the farm take the lives of many persons. Machines have become a menace to the well-being of the farm family. Other industries are required by law to provide safety devices and to compensate those injured, but little has been done to prevent accidents from use of farm machinery. In addition to the national and state safety programs there is a need for community organization to fight carelessness. The New York State Grange has recognized the need, and lecturers devote a part of each meeting to safety. A new film on farm safety, "Miracle in Paradise Valley," will be shown this coming year before all the granges and is available for other groups.

A column devoted to rural health in the monthly *Program Letter* to women of the Dairymen's League brings them information of all kinds. Essay contests in schools, play writing, menu contests and exhibits for meetings, fairs and field days are a few of the activities which include the youth in our health education program. The need of producing clean milk was taught through plays, movies, discussions and speeches at community meetings.

The New York State 4-H Clubs have for several years been guided in their health program by a committee made up of club agents, specialists and members of the 4-H administrative staff, with representatives of the various state departments and other organizations.

The objectives of the 4-H Health Improvement Project as set up by this committee are: (1) to encourage the correction of remediable defects; (2) to help young persons to develop sound bodies and mature personalities; (3) to encourage the acquirement of knowledge, skills and good habits related to health and safety; (4) to help youth share the responsibility for improving home and community health conditions, and (5) to help 4-H members and leaders to develop the goal, "Building Health for a Strong America." Many club programs included individual improvement in health, assistance in poliomyelitis drives, a drive to get every member to have roentgen examination of his chest, health exhibits, milk sanitation, fire prevention, vaccination clinics, first aid training, farm safety, and nutrition and food preparation projects.

The farm youth of America will accept their part in the health and safety programs.

MISS BETTY CHANDLER, Youth Committee, Farmers Educational and cooperative Union of America, Jamestown, N.D.: I would like to speak for those of us who want to live on the farm because to us there is no more satisfactory way of living. I would like to speak particularly for the Great Plains area. In the more heavily populated sections the problem is not so much lack of services as inability to pay for needed services. Both these major problems confront us in the Great Plains states, where the population is sparse and the distances are great. Our income is subject to great variation because of weather and crop conditions.

How does this affect our health problems? Here are some facts from my state. Twenty one of fifty three counties do not have a hospital. In many of those counties one must travel 50 to 100 miles to a hospital over gravel roads, impassable most of the winter. When the last survey was made, 67 per cent of the people lived in areas where the number of doctors is much less than the minimum standard of one doctor to 1,500 persons. Eighty-five per cent of our people are not covered by public health services, and in our entire state there is only one public health district functioning to provide preventive care to those who dwell outside of a big town. When crops are not good and prices are low we cannot afford medical care, and it is postponed until our illnesses are really serious. Statistics usually show averages and do not point out the great discrepancies of the kind I have tried to show that exist in North Dakota. The farmers' unions and rural organizations are deeply concerned about this situation; our program follows also a threefold pattern in the field of education. Farmers are meeting to discuss the over-all health situation and to study the need of their communities. They discuss information booklets to make them health conscious. The main emphasis in this education work is on the active participation of all persons in health programs. The Farmers' Union has held health meetings and workshops. At these workshops we try to make people aware of what facilities they have available to them. We also want to give them an opportunity to discuss their community health needs and to plan together to meet those needs. It is thrilling to see persons without specialized training in health study their problems at these workshops and become articulate in developing an activation program to meet their needs.

We have encouraged the development of community cooperative hospitals, clinics and prepaid insurance. We have one Farmers' Union insurance plan that offers hospital benefits and accident and death benefits, and this past year we aided in making insurance provisions to cover the cost of surgery as well. The Farmers' Union is working for a national insurance plan because, while we cannot overlook the valuable pioneering work done by the voluntary prepayment plans, they cannot cover all the persons who need medical care. We have seen the miracles of modern medicine as it faced the challenge of global war, and we seek to combine the best of these experiences in a rural health program. We are preparing to do some of these things in rural areas in the great plains. We need more hospitals in most rural areas and we can plan them for the places where they will serve the greatest need. In our rural hospital building program, we are not forgetting to make provision for nursing homes and wings on the hospitals to care for aged persons and chronic invalids.

The State Health Planning Committee in North Dakota with a group of representatives of interested organizations has developed a fine program for building rural hospitals. We need not only more health services but adequate housing, accident prevention, good roads and communication, creative recreation and a more stable income. Any advances we can make in any of these fields is also a gain for health. There is no reason why the barriers confronting rural residents in securing health care should persist, and we intend to work to help remove them. Many rural young people are taking medical and public health training and becoming nurses, hospital administrators and dentists with the desire to return to rural areas to serve. They are counting on those at home to set up clinics, health units and hospitals and to develop a prepayment plan to insure that the people can use the facilities, so they can return to rural areas to work and make their homes. They are counting on the cooperation of everyone in the development of better health services.

ELBERT HUTCHISON, Xenia, Ohio: *Health Facilities and Needs in My Community.* The Grange, the oldest farm organization in America, is most interested in the health of rural people. From our fields and homes come the wealth of America; if we are to continue to contribute so much, we must be ever mindful of the health of rural boys and girls. Some 36,000,000 Americans live in farm or village homes today, with about 89 per cent without bath or inside toilet, 82 per cent without proper water facilities, and 38 per cent with homes in too poor a condition to be repaired. The barometer of human welfare in our farm homes shows unnecessary illnesses, diseases, disabilities and deaths. In most farm communities, public health units are scarce and the supply of hospitals, doctors and nurses is inadequate. The quiet ravages of malnutrition go unchecked, babies are born without the care of a physician, and antepartum care, childbirth in hospitals and good care of the mother and baby are unheard of in many farm homes.

To guard our youth we must devise a method of putting the low paid farmer and sharecropper on a basis to compare with the average of workers in industry.

In cities about 72 per cent of the childbirths are in hospitals, and the mortality rate is very low. Medical neglect among farm mothers is about one-third more prevalent than among city mothers. The National and State Granges are advocating a health program which, if generally adopted, will benefit young persons everywhere. In addition to a State Health Committee, every county and every local Grange has a health committee. This committee encourages health programs in Grange meetings and encourages the setting up of health centers.

In my state there is a rural health organization made up of representatives of farm organizations and others. This committee meets regularly, and representatives from every county in the state attend an annual health meeting in Columbus. A rural health specialist who is a part of the Extension Service of our State Agricultural College assists. Regional meetings are held from time to time. These meetings encourage each community to have a health center with a well organized committee working in colaboration with the physicians and nurses. Their object is to make available to all citizens through educational material the information essential to healthful living. Many people who do not practice health rules are unaware that such rules exist.

In our school we have free roentgen examinations of the chest for all high school juniors and seniors. Money from the sale of tuberculosis stamps made possible the purchase of the x-ray machine. Lectures are given on the effects of alcohol and on personality problems of youth. This health education is fine, but there is not enough of it.

My community is fortunate in having a fine public health set-up. We must increase the income of the small farmer, low wage earner and sharecropper to the extent that he will have an equal opportunity to provide the health needs of his family. We need to cooperate in every respect to bring the health of our people up to high standards. Income alone cannot solve the problem. The people must be educated in a new way of living, and their lives changed until everyone will be on a basis of equality with regard to health. This can be done by cooperative groups supporting mobilized hospital and dental units, and centralized medical units and by the assistance of trained personnel.

MR. IRWIN JOHNSON, District Representative of the 4 H: I am not exactly the district representative, but in the absence of any one from the United States Department of Agriculture or the Extension Service, the people that administer the 4 H program, I have been asked to say a few words. 4 H stands for head, hand, heart and health. Over a period of years they have developed numerous projects, aimed at the improvement of rural living. They have safety contests on the farm, they emphasize nutrition, correct habits of sleep and other things necessary to good health. In 1946 there were 180,044 boys and girls who received health examinations through the program who could not have had them otherwise.

A new health program has been in operation for the past year. It has these broad objectives: the program should be planned on the basis of health needs of young persons for each community; it should be planned to cooperate with the local and state health authorities, and it must attract and appeal to youth. Thirty-seven states took part in it. After hearing these four young speakers today I am sure you are convinced that when they get an idea they want to go ahead with it. There are a million 4-H boys and girls around the country and there are many ways to help them do a more complete and satisfactory job.

MISS ELIZABETH ROBINSON, American Junior Red Cross, Washington, D.C.: The most hopeful thing I have heard at this meeting is the fact that you have put youth itself up here to talk to you. One of the secrets of success in this problem of health, is that we can't wait until the boys and girls grow up. We can't plan for either medical attention or education with complete success unless we let them take their part in the total picture.

(To be continued)

Washington Letter

(From a Special Correspondent)

May 29, 1948.

International Centers for Study of Tropical Diseases

Establishment of international centers for the study of tropical diseases was proposed at the closing meeting of the fourth International Congresses of Tropical Medicine and Malaria. The Pan American Sanitary Bureau with headquarters in Washington was suggested as an informational source for coordination of studies of tropical diseases, especially those affecting persons in the Western hemisphere. Also advocated was a survey of world food deficiencies. It was proposed that the Food and Agriculture Organization and the World Health Organization of the United Nations take immediate steps to investigate and correct human nutritional problems. At the concluding dinner in the Mayflower Hotel, the Laveran prize for research in malaria was presented to Col. Henry E. Shortt, professor of protozoology, University of London, and the Walter Reed Medal to Dr. N. H. Swellengrebel, Amsterdam Institute of Tropical Medicine.

Code of Ethics for Specialists in Mental Disease

Dr. Winfred Overholser, superintendent of St. Elizabeths Hospital, stated in his opening presidential address to the American Psychiatric Association in session here that there is need of a code of ethics for the 5,000 United States specialists in mental disease. Although psychiatrists are bound by the professional code of the American Medical Association, the field of mental disease is not adequately covered by the rules; hence, much unfavorable publicity and sensational misinformation results. Dr. Walter L. Treadway, former chief of the mental health division, U. S. Public Health Service, heads an association committee which is working on an adequate code.

Civilian Defense Plan

The members of the medical profession will play a major part in civilian defense. The Arlington Country, Virginia, Board has approved plans for a comprehensive civil defense program in case of atomic war, the first in the area of the District of Columbia. One job will be to locate everyone with any medical training, including veterinarians, to provide treatment in case of mass casualties.

Dr. Justin K. Fuller to Retire

Dr. Justin K. Fuller will retire next month as medical director, Federal Bureau of Prisons, and medical chief, Maritime Commission's training bureau, Surgeon General Scheele of the Public Health Service has announced. Dr. Fuller will be succeeded by Dr. Stanley E. Krumbiegel at the Bureau of Prisons and Dr. Daniel J. Daley at the Maritime post. Dr. Fuller will become medical consultant to the California Department of Corrections.

GOVERNMENT SERVICES

ARMY

OFFICERS SELECTED FOR SPECIALIZED COURSES

The Surgeon General announces the selection of the following officers for specialized courses in civilian and governmental institutions: Lieut. Col. Charles B. Perkins to be assistant resident in radiology at Massachusetts Memorial Hospital for two years, during which time he will also serve as professor of military science and tactics; Lieut. Col. Warren H. Diessner, training in allergy at the University of Illinois College of Medicine, Chicago, during which time he will serve also as assistant professor of military science and tactics; Major Edward H. Vogel, course in surgery at Tulane University School of Medicine, New Orleans, during which time he will serve as assistant professor of military science and tactics; Lieut. Col. William W. Currence, training in pediatrics at the University of Colorado School of Medicine, Denver; Lieut. Col. Theodore L. Hartridge, residency in otolaryngology at Washington University School of Medicine, St. Louis, during which time he will serve also as professor of military science and tactics.

ARMY INSTALLS ELECTRON MICROSCOPE

The electron microscope recently acquired by the Army made its first public appearance May 17 during the fourth International Congresses of Tropical Medicine and Malaria in Washington, D.C., May 10-18. Some 300 of the 2,000 persons attending the congresses viewed the microscope during open house at the Army Medical Department Research and Graduate School on the grounds of Walter Reed Hospital.

DR. SLOAN APPOINTED CURATOR OF MUSEUM

The Army Institute of Pathology, Washington, D.C., announces the appointment of Dr. Ruell A. Sloan as curator of the Army Medical Museum. Dr. Sloan is a graduate of the University of Rochester School of Medicine and has been on the faculty of Harvard Medical School, the University of Buffalo School of Medicine and St. Louis University School of Medicine. He served five years during the recent war as chief of laboratory services at an Army hospital and later as pathologist and executive officer of the Army Institute of Pathology. On leaving the service he was appointed assistant director of the institute and acting curator of the museum. He is a member of the American Board of Pathologists and president-elect of the Washington Society of Pathologists.

PERSONAL

Joseph R. Wagner, Ph.D., former head of the nutrition research section of Libby, McNeill & Libby, Blue Island, Ill., has joined the staff of the Quartermaster Food and Container Institute for the Armed Forces in Chicago. Dr. Wagner is said to have published numerous papers in the fields of biochemistry and nutrition.

Capt. James L. Hansen, M.C., who reported for duty at the Army Institute of Pathology on April 15, recently returned from the 49th General Hospital, Tokyo, Japan, where he was chief of laboratory service.

PUBLIC HEALTH SERVICE

FULL TIME EMPLOYEES IN STATE HOSPITALS

Personnel shortages in state mental hospitals are less acute now than in war years, but this gain is offset by more overcrowding and higher maintenance costs, according to 1946 figures compiled by the Mental Hygiene Division of the Public Health Service. There were 70,962 full time employees on the rolls of state hospitals at the end of 1946, making a ratio of 6.2 patients per employee. This ratio indicates a continuation of the decrease in the number of patients per employee which began in 1945, and represents a reversal of the upward trend which occurred during the war years. The percentage by which the average daily resident-patient population exceeded normal capacity increased from 12.3 in 1945 to 16.3 in 1947, and the per capita expenditure for maintenance rose from about $387 to $437 in the same period.

The figures are based on the results of the 1946 Census of Patients in Mental Institutions, collected and tabulated by the Bureau of the Census, Department of Commerce.

NEW ENVIRONMENTAL CANCER SECTION

Dr. W.C. Hueper has assumed his duties as chief of the new environmental cancer section of the National Cancer Institute in Bethesda, Md. In its announcement, the U. S. Public Health Service points out that there has been relatively little systematic study of cancer-causing factors in industry. It seems clear that part of the increased incidence of cancer is linked to the growth of industry during the past hundred years and to the dangers of prolonged exposure to certain substances. The recent first step in the environmental cancer control program was a grant to the Roswell Park Memorial Institute in Buffalo for a study of causes of occupational cancer among male patients coming to the institute for treatment. The new program includes the establishment of an occupational research laboratory at Georgetown University Medical School where investigators can study environmental factors in cancer. Dr. Hueper, a native of Germany who came to the United States in 1923, is the author of many publications in this and related fields. At present he is president of the American Society for the Study of Arteriosclerosis.

INFANT MORTALITY RATE DROPS

The infant mortality rate in 1946 was 11.7 per cent less than the rate in 1945, according to figures of the National Office of Vital Statistics. The number of infant deaths which occurred during 1946 was 111,063. The five leading causes of death during infancy were: premature birth; congenital malformations; pneumonia and influenza (combined); injury at birth, and diarrhea, enteritis and ulceration of the intestines (combined); 33.9 per cent of all deaths occurred under 1 day of age, 25.6 per cent during the remainder of the first week and 11.7 per cent during the second, third and fourth weeks. The highest infant mortality rate was 78.2 for New Mexico and the lowest was 27.2 for Utah. All but five states experienced a decrease in their infant mortality rates between 1945 and 1946.

SHARP RISE IN BIRTH RATE

A sharp rise in the birth rate in 1946, the first postwar year, was general throughout the country. Data prepared by the National Office of Vital Statistics of the U.S. Public Health Service indicate a total of 3,288,672 registered live births, an increase of 553,000 over 1945 and 354,000 over 1943. The 1946 final birth rate of 23.3 per thousand population including the armed forces overseas was an increase of 18.9 per cent over the rate (19.6) in 1945. The increase in the 1946 birth rate for the white population was more than twice as large as for the nonwhite. The largest increases were in the North Central and Middle Atlantic states. The 1946 state birth rates ranged from a high of 34.9 per thousand civilian population in New Mexico to a low of 20.6 in Massachusetts. Residents of the Mountain and Southern states generally had the highest birth rates in 1946, residents of the New England and Middle Atlantic states the lowest. This is similar to the pattern for 1945. The demobilization of the armed forces in the latter part of 1945 contributed to the sharp rise in the number of births during the second half of 1946. The rates for the early months of 1946 were at about the same level as those which prevailed during 1945.

MISCELLANEOUS

STAFF TO SUPPLY SCIENTIFIC INFORMATION

Dr. George E. Burch, Henderson professor of medicine, Tulane University School of Medicine, New Orleans, has been appointed to the staff of the scientific office of the Mission on Science and Technology recently established by the State Department as a permanent part of the United States Embassy in London. His appointment is for a period of three months. Other scientists on this staff are Earl A. Evans Jr., Ph.D., chairman, department of biochemistry, University of Chicago; Joseph B. Koepfli, Ph.D., of the California Institute of Technology, and Dr. Warren H. Cole, professor of surgery, University of Illinois School of Medicine, Chicago. The principal duty of the staff is to supply information concerning current developments in science and technology in the United States.

NUCLEAR PARTICLES PRODUCED FOR THE FIRST TIME

Dr. James B. Fisk, director of research, Atomic Energy Commission, Washington, D.C., and Dr. Ernest O. Lawrence, director of the Radiation Laboratory at the University of California, announce that nuclear particles, mesons, heretofore found only in cosmic rays, have been produced artificially for the first time at the Radiation Laboratory in research carried on for the Atomic Energy Commission. The liberation in the laboratory of these cosmic ray particles, one of the major objectives of research for the past decade, is regarded by scientists as the most significant event in fundamental nuclear science since discovery of uranium fission. However, no practical applications, such as fission, are now in sight. Dr. Lawrence said that this development opens up unprecedented opportunities for the understanding of mysterious subnuclear processes. In announcing the new achievement of the latest model of the cyclotron which Dr. Lawrence invented eighteen years ago, he gave full credit to the two men who performed the experiments: Dr. Eugene Gardner, research physicist at the Radiation Laboratory, and Dr. C.M.G. Lattes, a Brazilian scientist who came to Berkeley recently on a Rockefeller Foundation fellowship. Dr. Lawrence said that super atom smashers must be built in order to exploit fully the realms of nuclear knowledge which lie still deeper within the atom.

ADDITIONS TO STAFF OF OFFICE OF EDUCATION

The Office of Education, Federal Security Agency, Washington, D. C., announces the appointment of Dr. Cyrus H. Maxwell, Delmar, N. Y., as chief of administration of School and College Health Services, and of Max Herbert Freeman, Ph.D., Montclair, N. J., as specialist in the Business Education Service of the Division of Vocational Education. Dr. Maxwell was for many years chief of the Bureau of Health Services, New York State Department of Education; previously he was medical supervisor of the public schools of Auburn, N.Y., and engaged in the private practice of medicine. He served during World War II and is president-elect of the American School Health Association. Dr. Freeman was formerly professor of business education and head of the department at New Jersey State Teachers College in Paterson. He is co-author of several teaching manuals.

FELLOWSHIP TRAINING FACILITIES

The U.S. Atomic Energy Commission announces that facilities to train holders of fellowships in biology and medicine will be established in North Carolina, New York, Texas, Colorado, California and Oregon in time for the school year beginning this year. The program of fellowships recently established by the commission also allows fellows to train at other institutions.

One problem in the fellowship training program is the shortage of university faculty members who have the necessary specialized training. The commission therefore is arranging a series of courses for the coming summer to give advanced training to faculty representatives at the participating universities. Summer courses will be held at the University of California, Los Angeles, with Dr. Stafford Warren as director: the Institute of Nuclear Studies, Oak Ridge, Tenn., Dr. William Pollard, director, and the Brookhaven National Laboratory, Long Island, under a director to be appointed. Administration of the fellowship program, including the selection of candidates, will be undertaken for the commission by the National Research Council. Applicants from any branch of biology or medicine are eligible for fellowships which will be distributed among doctors of medicine and doctors of philosophy in the biologic sciences, bachelors of science and of arts who will receive training in health physics, and other suitably qualified scientific personnel.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ARKANSAS

State Medical Election.—At the annual meeting of the Arkansas Medical Society in Little Rock, April 15-17, Dr. Pearlie W. Lutterloh, Jonesboro, was installed as president. Dr. Euclid M. Smith, Hot Springs, was chosen president elect, and Dr. William R. Brooksher, Fort Smith, was reelected secretary. The society voted to hold its 1949 convention in Hot Springs.

CALIFORNIA

International College of Surgeons.—The Southern California Chapter of the International College of Surgeons met May 10 at the University Club of Los Angeles. Papers presented were on the following topics: Dr. F.E. Cooper, "Surgery of Pancreatic Cysts," and Dr. J. Stein, "Malignant Tumors of the Breast."

Seven Year Grant for Research.--The Rockefeller Foundation has granted the California Institute of Technology, Pasadena, $100,000 annually for seven years for research in biology and chemistry as it relates to poliomyelitis and cancer. The institute's research in this field is concentrated on problems in molecular biology. The grant will be combined with others that will make possible a basic research program which, when fully established, will cost $250,000 a year.

Society News.--The California Society of Internal Medicine, meeting at the conclusion of the State Medical Association program April 13, elected Dr. Harold M. F. Behneman, San Francisco, president, and Dr. Donald A. Carson, San Francisco, secretary. The following physicians were elected to honorary membership: Thomas Addis, San Francisco; George Blumer, Pasadena; Robert N. Bramhall, Fair Oaks; Charles Miner Cooper, San Francisco; George Dock, Pasadena; Donald Jackson Frick, Los Angeles; Robert Langley Porter and Herbert C. Moffitt, San Francisco, and Ray Lyman Wilbur, Stanford University.

CONNECTICUT

Annual State Meeting.—Dr. Samuel C. Harvey, professor of surgery, Yale University School of Medicine, New Haven, assumed office as president of the Connecticut State Medical Society at the recent annual meeting. Dr. Charles H. Sprague, Bridgeport, was named president elect. Reelected were: Dr. Cole B. Gibson, Meriden, treasurer; Dr. Creighton Barker, New Haven, executive secretary, and Dr. Stanley B. Weld, Hartford, editor of the *Connecticut State Medical Journal*. Dr. Barker and Dr. Joseph H. Howard, Bridgeport, were named delegates to the American Medical Association, with Dr. W. Holbrook Lowell Jr., Hartford, and Dr. Oliver L. Stringfield, Stamford, as alternates. The meeting was attended by one thousand Connecticut physicians. At the banquet, the speakers were Connecticut's Governor James C. Shannon, and Dr. Edward L. Bortz, Philadelphia, President of the American Medical Association. During the meeting two organizations were formed: Connecticut Diabetes Association, with Dr. Barnett Greenhouse, New Haven, as president; and the Connecticut Physicians' Art Association, which held its first annual exhibit. The house of delegates voted to approve a prepaid medical care plan to be operated by a nonprofit organization of which a majority of the board of directors shall be physicians.

COLORADO

Psychosomatic Medicine for General Practitioners. —An orientation course in psychosomatic medicine, planned chiefly for the needs of the general practitioner, will be held at the University of Colorado School of Medicine, Denver, June 14-26, sponsored by the medical school, the Mental Hygiene Division, U. S. Public Health Service, and the Colorado State Department of Health. The course will comprise lectures at the beginning of each day followed by individual case studies in small groups; in the afternoons there will be group discussions of patients who have been examined. Dr. Harold G. Wolff, associate professor of medicine and psychiatry, Cornell University Medical College, New York, will be in attendance during the course. The program is under the direction of Dr. Franklin G. Ebaugh, professor of psychiatry, University of Colorado School of Medicine. Inquiries are to be addressed to Dr. Ebaugh. The number of candidates who may be accommodated is limited. There is no tution. A registration fee of $10 is required.

State Society and Press Adopt Code.--The Colorado State Medical Society has brought about the adoption of a code of cooperation between press and radio, hospitals and the medical profession. The medical society agrees to act as an information center or clearing house with twenty-four hour telephone service so its personnel can aid newsmen, and has named a publicity chairman for each of its twenty-six component district societies to be a spokesman for his local group. Hospitals have also named spokesmen. Lists of these representatives will be provided press and radio. Newspapers and radio agree to recognize the doctor-patient relationship and to respect the privacy and legal rights of patients, to strive for utmost accuracy in reporting medical news, and to exercise due editorial judgment in avoiding news which seeks solely to exploit the patient, physician or hospital. The code has been developed as a result of a meeting called last autumn by Dr. John S. Bouslog, Denver, president of the state society, which was attended by news, radio, hospital and medical leaders.

ILLINOIS

Mumps at the Peak.—The state health department announced May 13 that more cases of mumps had then developed this year in Illinois than during all of 1947. Of 6,729 cases in the state, more than 5,000 were reported in Cook County. The incidence showed no signs of declining, the report said.

Narcotic Violation.—The Bureau of Narcotics, Washington, D.C., reports that Dr. Jacob H. West, Champaign, pleaded guilty at Danville to an indictment charging violation of the federal narcotic law and on Oct. 11, 1947 was fined $100 and placed on probation for a period of three years.

Chicago

Personal.—Dr. Israel Davidsohn, Mount Sinai Hospital, Chicago, reported as consultant to the Army Institute of Pathology for the week beginning May 3.—Dr. Jacob P. Greenhill delivered the Samuel and Minnie Good-Friend Memorial Lecture May 3 at Lebanon Memorial Hospital on "Recent Advances in Obstetrics and Gynecology."

Rename Loyola Medical School.—The Loyola University School of Medicine has been renamed the Stritch School of Medicine in honor of Cardinal Stritch. The school is undertaking to raise $12,000,000, part of which is for the new building in the West Side Medical Center, which will house both the medical and dental schools.

Phi Rho Sigma Luncheon.—The Phi Rho Sigma Fraternity has reserved the Chicago Yacht Club, at the foot of Monroe Street, for its American Medical Association luncheon on Wednesday, June 23. Reservations have been made for one hundred and twenty-five persons. Members of the local committee in charge of this meeting are Drs. Robert M. Graham, Lawrence W. Peterson and Howard B. Carroll.

KENTUCKY

Refresher Courses.--The University of Louisville School of Medicine, in cooperation with the Kentucky State Medical Association, is offering refresher courses which will be conducted at the Louisville General Hospital, Louisville, June 1-12. These courses are open to returning medical officers and practicing physicians who are members of their respective state medical associations. Applications will be accepted in the order in which they are received. However, first preference will be given to physicians from Kentucky. Courses in medicine and surgery will be given June 1-5; gynecology and obstetrics, June 7-9 and pediatrics, June 10-12. Instruction will be in the form of lectures, clinics, ward rounds and conferences with emphasis on demonstrations in patients of recent advances in therapy. Instruction will be given from 9 a.m. to 12 noon and 1:30 to 4:30 p.m. A number of part time courses have been arranged. Information regarding fees and schedules may be secured from Dr. Herbert L. Clay, Director, Postgraduate Refresher Training, University of Louisville School of Medicine, 323 East Chestnut Street, Louisville 2.

LOUISIANA

Grants for Research.--The American Cancer Society has awarded grants for cancer research totaling $20,500 to Tulane University of Louisiana School of Medicine, New Orleans. About half of the grant is for the study of testosterone and mammary cancer for the period July 1,1948,until June 1,1949.by Dr. Champ Lyons, associate professor of surgery, and Dr. William Parson, instructor in medicine. The remainder of the grant will be used for research already under way on simultaneous electrophoresis and centrifugation effects in cancer by Robert T. Nieset, Ph. D., associate professor of biophysics, and Malcolm Randolph, of the college of arts and sciences. Bacitracin studies will be extended for another year under a grant of $15,222 from the office of the Surgeon General, U. S. Army. Drs. Alfred B. Longacre, Robert M. Waters and Dr. Florence L. Evans are collaborating in the research.

MISSISSIPPI

State Board of Health.--The following physicians have been appointed to the Mississippi State Board of Health for a period of six years, dating from January 1: Harvey F. Garrison Jr., Jackson; Hugh L. McKinnon, Hattiesburg, and Samuel E. Field, Centreville, the latter a reappointment.

Demonstrations in X-Ray Pelvimetry.—Dr. Frederick W. Goodrich, assistant in obstetrics and gynecology, Yale University School of Medicine, New Haven, Conn., arrived in Mississippi May 3 for a series of demonstrations in roentgen pelvimetry. He was accompanied by Dr. James H. Ferguson, Tulane University of Louisiana School of Medicine, New Orleans. The demonstrations were held as a part of the joint consultation program being done in thirty-three southern Mississippi counties by the university and the state board of health. Demonstrations were conducted at King's Daughters' Hospital, Brookhaven, Mississippi State Charity Hospital, Jackson, South Mississippi Charity Hospital, Laurel, and Forrest County Health Department, Hattiesburg.

MICHIGAN

Personal.—Dr. Mille E. Wilson, for forty-one years on the staff at the Lapeer State Home and Training School, retired April 30.

Health Statistics Conference.—A special conference on public health statistics sponsored by the University of Michigan School of Public Health in cooperation with the Association of State and Territorial Health Officers will be held at Ann Arbor, June 14-18. Four general subjects will be discussed: What Services and What Relationships Do We Need; Collecting and Processing Data; Utilization of Data, and Personnel Needs and Integration of Statistics into Administrative Practice. The course has been planned with the assistance of a committee of state and national authorities in public health. Those wishing to attend should address their requests to Henry F. Vaughan, D.P.H., Dean of the School of Public Health, University of Michigan, Ann Arbor.

MASSACHUSETTS

Expand Cancer Program.—Dr. Henry M. Lemon, a recent appointee to the staff at Boston University School of Medicine, has been appointed coordinator of the expanding cancer research and teaching program at the university. Dr. Lemon will direct the use of a $24,950 grant from the U.S. Public Health Service exclusively for cancer teaching and research. He has previously carried on research work at the University of Chicago Clinics under Dr. O. H. Robertson for the Commission on Air-Borne Infection.

Children's Cancer Foundation.—The Variety Club of New England Children's Cancer Research Foundation was organized March 30 by representatives of the Variety Club of New England and the Children's Hospital, Boston, with an initial fund of $45,536. John J. Dervin was chosen president and Dr. Sidney Farber, chairman of the hospital's division of laboratories and research, will direct the work of the foundation, with the heads of the departments of the Children's Hospital acting as a board of consultation. The Variety Club established the blood bank at the Children's Hospital in 1946 with an annual grant of $10,000. The club is a philanthropic organization of men in theatrical and show business.

MINNESOTA

University Medical Lectures.--Dr. Arthur Grollman, professor of experimental medicine at Southwestern Medical College, Dallas, Texas, gave the annual Duluth Clinic Lectures on May 11-12 at the University of Minnesota Medical School, Minneapolis. He spoke Tuesday at 8 p.m. on "Pathogenesis and Treatment of Hypertension" and Wednesday at 4 p.m. on "The Hypothalamus and Its Disorders." An informal seminar also was held on "The Interrelationship of the Endocrine Organs." David P. Lloyd, Ph. D., of the Rockefeller Institute for Medical Research, will give the annual J. B. Johnston lecture in the Medical Sciences Amphitheater at 8 p.m. May 19, on "Monosynaptic Reflexes and the Myostatic Unit." He will also lecture at the Center for Continuation Study on May 20. The Johnston lectureship was established in 1944 in honor of John Black Johnston, former professor of comparative neurology.

NEW HAMPSHIRE

Annual Meeting of State Society.—The New Hampshire Medical Society will hold its annual meeting at the Hotel Wentworth, New Castle, June 2-3, under the presidency of Dr. John A. Hunter, Dover. The program is made up of round table conferences in the mornings and general meetings in the afternoons. Guest speakers include:

Henry C. Marble, Boston, Compound Injuries of the Hand.
Howard B. Sprague, Boston, Conditions Mistaken for Angina Pectoris and Coronary Thrombosis.
Gerald H. Pratt, New York, Surgical Management of Complications of Diabetes Mellitus.
Grantley W. Taylor, Boston, Carcinoma of the Buccal Cavity.

Drs. Henry W. Hudson Jr., Brookline, Mass., and J. Dellinger Barney, Boston, will take part in the conferences. The banquet will be at 7 p.m. Thursday.

NEW YORK

Rochester Academy Awards.—At a meeting of the Rochester Academy of Medicine, May 4, Dr. Paul W. Beaven, received the Paine Drug prize of $100 for his essay, "An Analysis of Tuberculosis Infection," and Dr. Stuart W. McLeod received the Mead Johnson prize of $100 for his essay on "Barbiturate Poisoning." The Council of Rochester Regional Hospitals' $100 prize for nurses was awarded to Miss Helen M. Yarosz for her essay on "Comprehensive Nursing Care," and Dr. Barbara Ann Wood was presented the John W. MacCauley $25 prize for a paper on "Adrenal Cortical Insufficiency in the Newborn."

Examinations of Boxers and Wrestlers.--The governor has approved a law creating a medical advisory board for the State Athletic Commission. The board, to consist of nine members appointed by the governor, will prepare regulations for the physical examination of professional boxers and wrestlers, recommend qualified physicians to conduct examinations required and the fees to be paid therefor and act in an advisory capacity to the commission. A physician designated by the commission shall be present at every boxing or sparring match or exhibition at the expense of the promoter.

New York City

Research on Alcoholism.—The Research Council on Problems of Alcohol has granted $30,000 to Cornell University Medical College to continue research into the causes and treatment of alcoholism. The grant is the second installment of the five year $159,000 project at the New York Hospital-Cornell Medical Center under the direction of Dr. Oskar Diethelm. The council has also granted $20,000 to the New York University College of Medicine for a study on biochemical and endocrinologic factors in alcoholism. The grant is the second this spring from the Research Council to the college.

University Appointments. -- Dr. Harold W. Brown has been appointed acting director of Columbia University's School of Public Health during the absense of Dr. Harry S. Mustard, who is on leave serving as Commissioner of Health of New York City. Dr. Brown, who has been professor of parasitology at Columbia since 1943, received his doctor of science degree at Johns Hopkins, his medical degree at Vanderbilt University School of Medicine, Nashville, Tenn., and a degree of doctor of public health at Harvard University, Boston. During the war he worked with the Navy on new drugs for the treatment of tropical disease and was consultant to the Secretary of War. Dr. Cushman D. Haagensen, associate professor of surgery, has been appointed coordinator of cancer teaching in the College of Physicians and Surgeons of Columbia University. The coordination project was made possible by a grant of $23,976 from the U. S. Public Health Service. Dr. Haagensen is a graduate of Harvard Medical School. He is also assistant attending surgeon and assistant surgical pathologist to the Presbyterian Hospital.

NORTH CAROLINA

University News.—Dr. Angus Crawford Randolph has joined the staff of the department of neuropsychiatry at Bowman Gray School of Medicine, Winston-Salem, as senior resident in psychiatry at Graylyn, the school's rehabilitation and rest center. Dr. Randolph is a graduate of Princeton University and the University of Virginia Department of Medicine, Charlottesville, Va., and is a veteran of the army air force medical corps.

Recent grants made to the Bowman Gray School of Medicine include one of $1,000 from the executive committee of the North Carolina division of the American Cancer Society,Inc., to pay for a refresher course in cancer for state physicians; two grants totaling $31,300 came from the National Cancer Institute of the U.S. Public Health Service to aid in cancer teaching under the direction of Dr. Robert P. Morehead, head of the department of pathology. A grant of $5,950 was made by the National Advisory Health Council for study of the formation of phospholipids by the liver in cirrhosis of the liver. Radioactive materials from the atomic pile are being used in this study.

OKLAHOMA

Postgraduate Courses.--The summer session of the Postgraduate Medical Course for Resident Physicians and Interns at Hillcrest Memorial Hospital, Tulsa, began May 3 and will extend through August with one lecture each day, Monday through Friday, at 6 p.m. with the exception of the Clinical Pathological Conference, which starts at 7 p.m. Although this course is primarily for the house staff, any doctor who is a member of his local county society is urged to attend at any time. There is no fee. The fall session will begin in September.

PENNSYLVANIA

Councilor District Annual Meetings.--Four Councilor Districts of the Medical Society of the State of Pennsylvania will hold annual meetings early in June. The Second Councilor District will meet at the Golf and Country Club, West Chester, June 2 beginning at 12:30 p.m. The speakers will be Chauncey L. Palmer, Pittsburgh, "Pending Health Legislation," and Paul N. Jepson, Philadelphia, "Treatment of Painful Shoulder."

The Eleventh Councilor District will meet at the Country Club, Uniontown, June 2 at 10 a.m. The program is as follows:

Paul Staman, Uniontown, Characteristics of the Allergic Child.
Othello S. Kough, Uniontown, Cancer of the Lung.
Leroy C. Waggoner, Brownsville, Practical Considerations of the Connective Tissue.
L. Dale Johnson, Connellsville, Office Treatment of Diabetes Mellitus.
William H. Mease, Uniontown, Female Sterility.
Floyd H. Bragdon, Pittsburgh, Neurosurgical Problems in General Practice.
Frank J. Gregg, Pittsburgh, Physiologic Principals in Management of Heart Failure.

On June 3 the Fifth Councilor District will meet at the West Shore Country Club, Camp Hill, near Harrisburg, at 10 a.m. Those present will hear: Pascal F. Lucchesi, Philadelphia, "Shifting Role of Preventive Medicine;" Louis B. LaPlace, Philadelphia, "Chronic Illness"; William Dunbar, Philadelphia, "Rehabilitation of the Chronically Ill"; Mr. Lester H. Perry, Harrisburg, "Public Relations," and Chauncey L. Palmer, Pittsburgh, "Pending Health Legislation."

The Sixth Councilor District will meet at the Green Gables Hotel, Lewistown, June 9 at 12 noon. Speakers will be:

Chauncey L. Palmer, Pittsburgh, Pending Health Legislation.

Mr. Lester H. Perry, Harrisburg, Improving Public Relations.
Thomas M. Durant, Philadelphia, Treatment of Congestive Failure.
Louis B. LaPlace, Philadelphia, Problems of Geriatrics.

SOUTH DAKOTA

Annual State Medical Meeting. -- The South Dakota State Medical Association will hold its annual meeting in the Coliseum, Sioux Falls, May 30 to June 1, under the presidency of Dr. H. Russell Brown, Watertown. Guest speakers will be:

Marvie H. Petersen, Chicago, The National Physicians Committee.
Harry M. Weber, Rochester, Minn., Early Diagnosis of Intestinal Neoplasm.
Jay A. Myers, Minneapolis, Minn., Eradication of Tuberculosis -- Your Responsibility.
Emil D. W. Hauser, Chicago, Orthopedic Care of Polio Patients.
Henry L. Williams, Rochester, Minn., Classification and Treatment of Common Types of Headache.
Donald W. Hastings, Minneapolis, Minn., Psychosomatic Aspects of the Gastrointestinal Tract.
Albert W. Diddle, Dallas, Texas, Noninvasive Cervical Cancer.
Nathaniel G. Alcock, Iowa City, Iowa, Tumors of the Adult Kidney.
Walter L. Bierring, Des Moines, Iowa, Public Health and the Practicing Physician.
Walter A. Fansler, Minneapolis, Minn., Polyps of the Colon and Rectum.
Charles H. Slocumb, Rochester, Minn., Vitamin Toxicity.
Max M. Peet, Ann Arbor, Mich., Splanchnicectomy in Treatment of Hypertension.
L. Fernald Foster, Bay City, Mich., Medical Economics in a World of Change.
Francis W. Lynch, St. Paul, Minn., Treatment of Common Dermatoses.
Carroll E. Roach, Indianapolis, Ind., Developments in Active Immunization.
A. Graham Asher, Kansas City, Mo., Advances in Cardiology.

The annual banquet will be at the Cataract Hotel, May 31, with Dr. Morris Fishbein, Editor of THE JOURNAL, speaking on " A Century of Medical Progress." The Woman's Auxiliary and the South Dakota Academy of Ophthalmology and Otolaryngology will meet in conjunction with the state society.

TEXAS

Hardin Memorial Fund. — A Southwestern Medical Foundation memorial fund, in honor of the late Dr. Hal W. Hardin, Dallas, has been established by Dallas naval reserve officer friends of the physician and other friends. Dr. Hardin, who died Dec. 29, 1947, was clinical instructor in ophthalmology at Southwestern Medical College and staff member of Baylor Hospital.

Institute of Alcohol Studies.—The Yale Institute of Alcohol Studies in the Southwest was formally inaugurated at a two day celebration in Fort Worth May 14-15. Yale University is establishing a long range research and clinical center in cooperation with Texas Christian University, Fort Worth. At the inaugural dinner in public health activities, representatives of state and county medical societies, the presidents of Texas universities and of the state universities of New Mexico, Oklahoma and Arkansas were present. The Yale Institute of Alcohol Studies in the Southwest will comprise the following activities: (1) research unit in the social sciences at Texas Christian University, (2) clinic for the rehabilitation of alcoholic persons at Dallas, (3) summer school of alcohol studies at Trinity University, San Antonio and (4) informal educational activities at all levels throughout the state. Administration of the institute will be centered at the Yale Laboratory of Applied Physiology to assure tested experience and expertness in the field. Dr. Howard W. Haggard and Elvin M. Jellinek, Sc.D., New Haven, Conn., director of the institute and a Texas advisory board will determine the broad policies of the institute.

GENERAL

Postgraduate Committees Luncheon.—The Associated States Postgraduate Committees will have a luncheon meeting June 23 at the Palmer House, Chicago.

Receives Richards Medal.--Edwin J. Cohn, Ph. D., chairman of the department of physical chemistry, Harvard Medical School, Boston, was awarded the 1948 Theodore William Richards Medal of the northeastern section of the American Chemical Society, May 13. Dr. Cohn is known for his work in combating disease and shock through research in the chemistry of the blood.

Society for the Study of Sterility.--The annual national conference of the American Society for the Study of Sterility will be held at the Congress Hotel, Chicago, June 21-22. Invited speakers include: Drs. Charles B. Huggins, Chicago, Melvin R. Cohen, Chicago, Ira I. Kaplan, New York, Dr. M. James Whitelaw, Phoenix, Ariz., and Dr. Oscar Schneller, Philadelphia. The registration fee is $5.

Dr. Hamilton Receives Van Meter Prize Award. — Dr. C. Ferrill Hamilton, Rochester, Minn., fellow in medicine, was given the Van Meter Prize Award of the American Association for the Study of Goiter at a meeting in Toronto, May 6 - 8. The award was offered for the best essay on original work on problems related to the thyroid gland. Dr. Hamilton's paper is entitled "Radioiodocasein: Its Action, Fate and Distribution in the Human."

Annual Meeting of Neurologists.--The American Neurological Association will hold its annual meeting June 14-16 at the Hotel Claridge, Atlantic City, N. J., under the presidency of Dr. George Wilson, Philadelphia. Guest speakers from the European continent include: Birger Kaada, Arne Torkildsen, and Kristian Kristiansen of Oslo, Sweden. In addition, numerous papers will be presented by members of the association.

Polio Emergency Volunteers Handbook.--The National Foundation for Infantile Paralysis has prepared the 1948 Polio Emergency Volunteers Handbook, which is ready for distribution. It explains how a chapter initiates and carries out the emergency program in both rural and urban areas. About 10,000 Polio Emergency Volunteers have been trained by the National Foundation in a project experimental three years ago but now of proved worth. Copies may be obtained free of charge by writing the foundation at 120 Broadway, New York 5.

New Director of Cancer Society.--Dr. Charles S. Cameron, New York, associated with the American Cancer Society, Inc., since 1946, was appointed medical and scientific director at a board meeting in Chicago in February. He has served in the various capacities of assistant, acting and associate medical and scientific director, as well as director, of the service department. He is also a consultant in cancer control to the U.S. Public Health Service and is clinical assistant surgeon at Memorial Hospital, New York

Urology Prize Essay Fund.—The Southeastern Section of the American Urological Association announces receipt of a $1,000 donation from Mr. and Mrs. William R. McEwen, Fort Lauderdale, Fla. The fund is to be used to stimulate research on the problem of "Urinary Bladder Dysfunction." An award of $250 will be made for the best essay presented before the annual meeting of the Southeastern Section. Competition is open to physicians who have graduated from medical school within the past ten years. Information may be obtained from Dr. Russell B. Carson, 408 Sweet Building, Fort Lauderdale, Fla., who is secretary-treasurer, Southeastern Section, American Urological Association.

Grants for Pharmaceutical Research.—The Purdue Research Foundation has received $2,500 from Pitman-Moore Company, Division of Allied Laboratories, Inc., for the purpose of developing and improving medicinal products. The investigations under this project will be directed by Glenn L. Jenkins, Ph.D., dean of the Purdue University School of Pharmacy, Lafayette, Ind. Another grant of $2,000 was made by the company to the Committee for the Promotion of Medical Research, Inc., New York. Dr. Robert C. Batterman will supervise the work under this grant.

Conference of State Associations Officers.--The annual Conference of Presidents and other Officers of State Medical Associations will meet at the Sheraton Hotel, Chicago, June 20, 12:30-5:00 p.m., under the presidency of Dr. L. Howard Schriver, Cincinnati. The group will be addressed by:

Joseph H. Howard, Bridgeport, Conn., Despotism by Consent of the Governed.

Paul R. Hawley, Washington, D.C., The Blue Shield-Blue Cross Program.

John W. Cline, San Francisco, Why a State Medical Association?

International Congresses.--The International Federation of Sport-Medicine has announced its general assembly will be held June 29 in Prague, Czechoslovakia. The Seventh International Medical Congress of Physical Education will be held July 1-5 in connection with the XI Sokol Festival, Prague. At the conclusion of the congress, trips through Czechoslovakia will be organized for the members. The application fee of KCS 400 allows for the railway reduction for the participation at the Sokol festival and for the congress publication. Applications from abroad should be sent to Prof. MUDr. Jiri Kral, Praha II, Vladislovova 15, Czechoslovakia.

Esmond Long to Edit Tuberculosis Journal.--Dr. Esmond R. Long, Philadelphia, director of medical research and therapy, National Tuberculosis Association, has been named editor in chief of the *American Review of Tubercolosis*. to succeed the late Dr. Max Pinner. A new position of managing editor has been created and Dr. Walsh McDermott, associate professor of medicine, Cornell University Medical School, New York, has been appointed. Editorial offices of the publication are being returned to New York from Oakland, Calif., where they were transferred in 1946. Dr. Long, who is also director of the Henry Phipps Institute, Philadelphia, has been director of the National Tuberculosis Association's medical research since January 1947. He is a past president of the National Tuberculosis Association and is a consultant to the United States Army, the Veterans Administration and the U.S. Public Health Service.

Interamerican Cardiological Congress.—The Third Interamerican Cardiological Congress will be held at Michael Reese Hospital, Chicago, June 13-17. Visiting chairmen of the scientific sessions include: John Hepburn, Toronto, Canada; Hernan Alessandri, Santiago, Chile; Luis Ortega Verdes, Havana, Cuba; Cecil C. Birchard, Montreal, Canada; Salvador Aceves and Teofilo Ortiz Ramirez, Mexico, D.F., Mexico; Roberto Vedoya, Buenos Aires, Argentina; Augustin Castellanos y Gonzales, Havana, Cuba; Ignazio Chavez, Mexico, D.F., Mexico; Pedro Cossio, Buenos Aires, Argentina; Arturo Rosenblueth, Mexico, D.F., Mexico; Rafael M. Alzamora, Lima, Peru; Ramon M. Aixala, Havana, Cuba, and Gustav Nylin, Stockholm, Sweden. Among individuals from various nations who will present papers are: Mohamed R. Kenawy, Cairo, Egypt; Gustav Nylin, Stockholm, Sweden; Nicandro Chavez, Mexico, D.F., Mexico; Imre Zarday, Budapest, Hungary; Johannes Barthomeus Kleyn, Hague, Netherlands; Pierre Rijlant, Brussels, Belgium; Kenneth I. Melville, Montreal, Canada; Max Winternitz, Trutnov, Czechoslovakia, and Albert A.F. Peel, Glasgow, Scotland.

A banquet for official delegates and foreign members and guests of the congress will be given June 14 at the Stevens Hotel. On Tuesday evening, delegates, foreign members and guests of the congress will be entertained at a banquet at the Stevens Hotel by the American representatives of the first and second congresses. On Wednesday from 9 to 12 p.m. the directors of Michael Reese Hospital will hold a reception at the Drake Hotel.

CORRECTIONS

Polymyxin.--In the article on "Polymyxin" in THE JOURNAL, April 24, on page 1097 the LD 50 in mice should have been stated at 250 to 300 mg. per kilogram instead of 50 to 300 mg.

Charles H. Scheifley.--The foregoing is the correct spelling of this author's name, and he is with the Division of Medicine, Mayo Clinic, Rochester, Minn., rather than with the Division of Medicine, Northwestern University Medical School, Chicago, as was indicated in THE JOURNAL, March 20, page 819.

Appointments and Promotions.--Dr. Isidor C. Rubin, lately appointed clinical professor in the department of obstetrics and gynecology, New York University College of Medicine, is located in New York City, not Hempstead, N. Y., as stated in THE JOURNAL, April 17, page 1057.

Residency Training Program.--Data regarding the approved residency training program in orthopedic surgery at the Cincinnati General Hospital, Cincinnati, published in THE JOURNAL May 1, page 64, are revised as follows: chief of service, Dr. Joseph A. Freiberg; inpatients treated, 250; number of outpatient visits, 7,048; deaths on service, 3; number of autopsies, 1; assistant residents, 2; residents, 1; service begins, July 1; length of service, one to two years; minimum stipend per month, $25.

Marriages

GEORGE OTTO FRENCH, San Luis Obispo, Calif., to Miss Marion Blascoe of Brooklyn, January 25.

MORRIS J. FINER, Denver, to Miss Helen Pilaszewski of Cicero, Ill., February 7.

HERBERT CAILLE MAIER to JANET STERLING BALDWIN, both of New York, January 10.

SAMUEL LOGAN, New Orleans, to Miss Margot Bennett of Atlanta, recently.

JAMES BLACKMAN HAVRON, South Pittsburg, Tenn., to Miss Carolyn Elizabeth Morgan in Chattanooga, January 10.

JOHN McMAHAN DAVIS, Columbia, S. C., to Miss Mary Burke in Alcolu, January 16.

ROBERT LUCIUS TORNELLO, Youngstown, Ohio, to Miss Jean DeEtte Pullam of Canfield, January 10.

PAUL BERNHARDT TOMS, Salisbury, N. C., to Miss Mabel Bassett Hooker in Martinsville, Va., Dec. 6, 1947.

CARL A BERNTSEN JR., San Francisco, to Miss Anne Proctor Rice in Hamilton, Mass., January 10.

ALBERT G. KING JR. to Miss Nancy Deen, both of Lakeland, Fla., in Philadelphia Dec. 3, 1947.

CUSTIS LANSING COLEMAN, Richmond, Va., to Miss Janet Shaw McGeachy Fisher of St. Pauls, N. C., January 10.

JEROME D. FRANK to Miss Elizabeth Morris Kleeman, both of New York, January 4.

Deaths

Rupert Lee Blue ⊕ Medical Director, U. S. Public Health Service, retired, died in the Roper Hospital at Charleston, S.C., April 12, aged 79, of arteriosclerotic heart disease. Born in North Carolina on May 30, 1868, Dr. Blue received his medical degree from the University of Maryland School of Medicine, Baltimore, in 1892. Immediately thereafter he entered the U. S. Public Health Service as intern, becoming assistant surgeon in 1893, passed assistant surgeon in 1897, surgeon in 1909 and surgeon general from 1912 to 1920. During this time he was stationed at Baltimore, Galveston, Texas, Charleston, S.C., San Francisco, Portland, Ore., Milwaukee, New York, Norfolk, Va., and New Orleans, having been assigned to hospital, quarantine and other public health duties.

Dr. Blue was sent to Italy by President McKinley when cholera threatened our shores in 1900. In 1905 he was second in command of measures taken in New Orleans to eradicate yellow fever. In 1903 and again in 1907 he was placed in charge of plague-eradicative measures in California, where he advanced the idea that rat-proofing is essential to prevent plague in urban communities. As director of sanitation of the Jamestown exposition in 1907, Dr. Blue reduced mosquito-breeding areas to prevent malaria. This experience was later responsible for his special study of tropical diseases at the London School of Tropical Medicine. Then he became adviser to the governor of Hawaii with the object of guarding against the introduction of yellow fever and malaria after the opening of the Panama Canal. It was from this duty that he was called to become Surgeon General. He directed investigations of leprosy which led to the establishment of the federal institution at Carville, La. Under his administration the Public Health Service also inaugurated venereal disease prevention and control work in cooperation with the states. During World War I he was chief of the Federal Health Service, which, with the Red Cross and state boards of health, set up sanitary safeguards in military camps. In May 1928 he served on a board in Washington, D.C., to revise the quarantine regulations, to prevent international transmission of disease by airplane travelers.

Dr. Blue was president of the American Medical Association in 1915, served as president of the Association of Military Surgeons of the United States from 1915 to 1917, was an honorary fellow of the American College of Surgeons and held membership in many other scientific societies. In 1910 he represented the Public Health and Marine Hospital service at the International Medical Congress at Buenos Aires. During a trip to Europe in 1920 he directed efforts to prevent the spread of disease to this country whereby immigrants were examined by officers in twenty-nine European ports. He was a delegate to the International Office on Public Hygiene in Paris, from 1920 to 1923, to the third Decennial Revision of the International Nomenclature of Diseases, adviser to U. S. Mission Lausanne Peace Conference, 1922-1923, and American delegate to the Opium Conference, League of Nations, in Geneva, Switzerland, in 1923. He received honorary degrees from the universities of Maryland, Wisconsin and Michigan. The president of France bestowed on him the insignia of a Chevalier of the Legion of Honor. He retired from the U. S. Public Health Service in 1932.

Reid Hunt, Boston, professor of pharmacology emeritus at Harvard Medical School, died March 10, aged 77, of pneumonia. Dr. Hunt was born in Martinsville, Ohio, April 20, 1870. Following studies at Wilmington College and Ohio University he studied in Germany, then returned to Baltimore, where he received his M.D. degree from the College of Physicians and Surgeons in 1896. After serving as tutor in physiology at Columbia University College of Physicians and Surgeons in New York from 1896 to 1898, he was on the staff of Johns Hopkins University School of Medicine in Baltimore until 1903, first as associate and then as associate professor of pharmacology. From 1902 to 1904 he worked in Ehrlich's Laboratory in Frankfort, Germany, then returned to the United States to take the position of chief of the pharmacologic division in the hygienic laboratory of the U.S. Public Health Service. In 1913 he went to Harvard as professor of pharmacology, becoming professor emeritus in 1936. In 1923 he was visiting professor to Peking-Union Medical College and from 1920 to 1930 president of the United States Pharmacopoeial Convention. He was chairman of the Section on Pharmacology and Therapeutics of the American Medical Association from 1908 to 1909 and a member of the House of Delegates in 1911 and 1912. In 1906 he was appointed a member of the Council on Pharmacy and Chemistry of the Association; he served until 1924, when he was appointed vice chairman, and was chairman from 1927 to 1936, when he resigned. Dr. Hunt was a member of the National Academy of Sciences, the American Academy of Arts and Sciences, the Association of American Physicians, the Leopold-Carol Akademie, the Deutsche Pharmkologie Gesellschafft, the American Physiological Society and the American Society for Pharmacology and Experimental Therapeutics, of which he had been first secretary and the third president. He was chairman of the Northeastern Section of the American Chemical Society and consultant pharmacologist to the Massachusetts Board of Health and to the Chemical Warfare Service of the U.S. Army. He was a member of the permanent standards commission of the League of Nations. Dr. Hunt was at one time a member of the editorial board of the *New England Journal of Medicine* and contributed much to the literature on his speciality.

Abraham Arden Brill ⊕ New York, noted psychiatrist, died at Mount Sinai Hospital March 2, aged 73, of coronary thrombosis Dr. Brill was born in Austria Oct. 12, 1874, was graduated from New York University in 1901 and received his M.D. degree from Columbia University College of Physicians and Surgeons, New York, in 1903. After four years as an assistant physician at the Central Islip (N.Y.) State Hospital he went abroad and studied in Paris, Zurich and Vienna. Returning to the United States, he became chief of the clinic in psychiatry at Columbia University, a post he held from 1911 to 1912. During World War I he was a major in the medical reserve corps of the U.S. Army. Dr. Brill, a specialist certified by the American Board of Psychiatry and Neurology, had been lecturer on psychoanalysis and abnormal psychology at New York University and an assistant professor of psychiatry at the New York Post-Graduate Medical School. At the time of his death he was clinical professor of psychiatry at the New York University College of Medicine and lecturer on psychoanalysis and psychosexual sciences at Columbia University. He was a member of the New York Neurological Society; American Psychopathological Association; American Psychoanalytic Association, of which he was past president; New York Psychoanalytic Society, of which he was honorary president; New York Academy of Medicine; American Psychiatric Association;

Association for Research in Nervous and Mental Diseases; American Association for the Advancement of Science, and the Anthropological Ethnology Society. In 1943 Dr. Brill delivered the Salmon Lectures on psychiatry and mental hygiene at the New York Academy of Medicine. He was consultant at the Manhattan State Hospital and the Veterans Administration Hospital. Among his numerous works were translations into English for the first time of the writings of Freud, including "Psychoanalysis—Its Theories and Practical Application," "Fundamental Conceptions of Psychoanalysis," "Freud's Selected Papers on Hysteria," "Three Contributions to the Theory of Sex," "Freud's Interpretations of Dreams" and "Psychopathology of Everyday Life."

J. Bentley Squier ⊕ New York, professor emeritus of urology at Columbia University College of Physicians and Surgeons, died March 1, aged 74, of coronary thrombosis. Dr. Squier was born in New York Nov. 6, 1873. After graduating from Columbia University College of Physicians and Surgeons, New York, in 1894, he interned at St. Luke's Hospital, then for twelve years was attending surgeon for the City Department of Charities. He was appointed professor of genitourinary surgery at the New York Post-Graduate Medical School in 1909, serving until 1924, and was professor of urology at Columbia University from 1917 until 1939, when he became emeritus professor. In 1917 he aided in forming the staff of the United States Army General Hospital number 1, and during World War I served as a major in the medical reserve corps and as a member of the General Medical Board of the Council of National Defense. A specialist certified by the Board of Urology, Dr. Squier was a member and past president of the American Urological Association, American Association of Genito-Urinary Surgeons and the Medical Society of the County of New York. He was a member of L'Association Internationale d'Urologie and of the Clinical Society of Genito-Urinary Surgeons. Dr. Squier was one of the founders of the American College of Surgeons, of which he was a life member, governor, regent and past president. The Squier Urological Clinic, which he organized and served as director, was established by friends and former patients as a tribute to him at the Columbia-Presbyterian Medical Center. He was consulting surgeon at St. Luke's Hospital and consulting urologist to Roosevelt Hospital and the Neurological Institute. In 1925 he received the Doctor of Laws degree from the University of Pittsburgh and in 1938 was made a Commander of the Order of the North Star by King Gustav V of Sweden.

James Taylor Harrington ⊕ Poughkeepsie, N.Y.; born in New York May 7, 1877; Columbia University College of Physicians and Surgeons, New York, 1906; past president of the Poughkeepsie Academy of Medicine and the Dutchess County Medical Society; formerly member of the board of health and a director of the Dutchess County Health Association; member of the founders group of the American Board of Surgery; fellow of the American College of Surgeons; served during World War I; attending surgeon at the Vassar Brothers Hospital, where he served as superintendent and chief surgeon; formerly director of the Poughkeepsie Chamber of Commerce, Y.M.C.A. and the Fallkill National Bank; died February 27, aged 70.

Leland Eggleston Cofer ⊕ Surgeon, U.S. Public Health Service, retired, Palm Beach, Fla.; born in Richmond, Va., in 1869; Medical College of Virginia, Richmond, 1889; entered the U.S. Public Health Service in 1890; later placed in charge of the Marine Hospital, Quarantine and Immigration Medical Affairs, in the Hawaiian Islands; served for two terms as assistant surgeon of the United States; at various times a member of the board of health of the city of New York, health officer of the Port of New York and director of the division of industrial hygiene of the New York State Department of Labor; formerly member of the Public Health Committee of the New York Academy of Medicine; died February 17, aged 78, of coronary sclerosis.

Joseph Spragg Evans ⊕ Madison, Wis.; born in West Chester, Pa., March 6, 1875; University of Pennsylvania Department of Medicine, Philadelphia, 1899; emeritus professor of Medicine at the University of Wisconsin Medical School, where he was the first professor of medicine and chairman of the department; at one time instructor in clinical medicine at his alma mater and associate at the William Pepper Laboratory of Clinical Medicine in Philadelphia; fellow of the American College of Physicians; honorary member of the Wisconsin Hospital Association; specialist certified by the American Board of Internal Medicine; affiliated with the State of Wisconsin General Hospital, where he died February 3, aged 72, of arteriosclerosis.

Ernest Frederick Krug ⊕ New York; born in Cleveland Oct. 27, 1877; Columbia University College of Physicians and Surgeons, New York, 1900; formerly associate professor of ophthalmology at the New York Post-Graduate Medical School and Hospital, Columbia University; specialist certified by the American Board of ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology and the American Ophthalmological Society; served during World War I; consulting ophthalmologist and past president, medical board, Lenox Hill Hospital; affiliated with the New York Post Graduate Hospital; died February 28, aged 70, of a cerebral accident.

Charles Alexander Bailey, Jackson, Miss.; Long Island College Hospital, Brooklyn, 1898; hospital consultant with the Mississippi Commission on Hospital Care; for many years affiliated with the International Health Board of the Rockefeller Foundation, serving in Europe and Latin America; recipient of many awards in this country, Mexico and abroad; at one time health officer of Yazoo County; died February 4, aged 71, of coronary thrombosis.

John Alfred Barton, Fitchburg, Mass.; Harvard Medical School, Boston, 1897; member of the American Medical Association and of the New England Otological and Laryngological Society; affiliated with Burbank Hospital, where he died February 26, aged 73, of Parkinson's disease and uremia.

Charles Coffing Beach ⊕ Hartford, Conn.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1882; past president of Hartford Medical Society; formerly medical director of the Travelers Insurance Company; for many years on the staffs of the Hartford, St. Francis, Mount Sinai and McCook Memorial hospitals; at one time police surgeon; member of the American Museum of Natural History and the Zoological Society of New York; died February 11, aged 91, of coronary disease.

Theodore Bruce Beatty, Ross, Calif.; Rush Medical College, Chicago, 1884; member of the American Medical Association and the Utah State Medical Association; past president of the Conference of State and Provincial Health Authorities of North America; health commissioner of Utah from the time the state department of health was created in 1899 until he retired on July 3, 1935; served as secretary of the state board of health; formerly affiliated with the U.S. Public Health Service; died February 12, aged 84.

Robert Gale Boyd ⊕ Spokane, Wash.; University of Nebraska College of Medicine, Omaha, 1930; past president and secretary of the Spokane County Medical Society; fellow of the American College of Surgeons; specialist certified by the American Board of Surgery; affiliated with Sacred Heart, Deaconess and St. Luke's hospitals; died in Berkeley, Calif., February 18, aged 43, of cerebral thrombosis.

William Augustus Boyd ⊕ New York; College of Physicians and Surgeons, medical department of Columbia College, New York, 1895; first vice president of the Bronx County Medical Society when it was chartered; one of the organizers of the Bronx Medical Association, serving as its president in 1910 and later as treasurer; affiliated with the Lincoln Hospital and the Union Hospital, where he died February 20, aged 75, of chronic myocardial disease.

Emery G. Bounell, Hillsboro, Ind.; Medical College of Indiana, Indianapolis, 1895; member of the American Medical Association; served during World War I; on the staff of Culver Hospital, Crawfordsville; president of Hillsboro State Bank and Hillsboro Building and Loan Association; died in St. Elizabeth Hospital, Danville, Ill., February 20, aged 76, as the result of a fall.

Alfred Ernest Braden, Everett, Wash.; Medico-Chirurgical College of Kansas City, Mo., 1905; died in King County Hospital, Seattle, January 21, aged 72, of injuries received in an automobile accident.

Orvis Adoniram Brenenstuhl ⊕ Albany, N.Y.; Albany Medical College, 1913; county coroner's physician for many years; on the staff of the Memorial Hospital; died February 14, aged 59.

Alfred James Bryant, Marshalltown, Iowa; Starling Medical College, Columbus, 1896; affiliated with Decatur County Hospital in Leon; died February 24, aged 78.

Michael Canick ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1914; served on the staffs of the New York Post-Graduate Medical School and Hospital in New York, Beth El Hospital, Brooklyn Hebrew Home and Hospital for Aged and East New York Dispensary; consulting proctologist at the Brooklyn Womens Hospital; died February 14, aged 60, of coronary occlusion.

Joseph Caplan, Baltimore; University of Virginia Department of Medicine, Charlottesville, 1925; member of the American Medical Association; served during World War I; died February 7, aged 48, of duodenal ulcer and hypernephroma.

James Caloway Carr, Middlesboro, Ky.; Lincoln Memorial University Medical Department, Knoxville, Tenn., 1912; served during World War I; died February 3, aged 60, of hypertensive heart disease.

Francis Patrick Carroll ⊕ Bridgeport, Conn.; Johns Hopkins University School of Medicine, Baltimore, 1914; for six years city physician; past president of the Bridgeport Medical Association; served on the staff of St. Vincent's Hospital, where he died January 2, aged 64, of arteriosclerotic heart disease.

Harvie De Jarnette Coghill ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1926; assistant professor of pediatrics and neuropsychiatry at his alma mater; member of the American Psychiatric Association and the American Orthopsychiatric Association; director of the Memorial Guidance Clinic; died February 6, aged 63, of pneumonia.

John Henry Collins ⊕ Schenectady, N.Y.; University of Vermont College of Medicine, Burlington, 1897; formerly city health commissioner; served on the staff of Ellis Hospital; member of the board of directors and formerly on the staff of the Sunny View Home for Crippled Children; died January 25, aged 78.

Ezra Lincoln Covey, Honor, Mich.; Grand Rapids Medical College, 1899; University of Michigan Homeopathic Medical School, Ann Arbor, 1907; died February 1, aged 74.

Foster Julius Curtis, Salt Lake City; Hahnemann Medical College and Hospital, Chicago, 1905; member of the American Medical Association; served during World War I; commanding officer of the Veterans Administration Hospital; died February 3, aged 66, of cerebral hemorrhage.

Louis Henry Dyke Jr., ⊕ Berkeley, Calif.; University of Southern California School of Medicine, Los Angeles, 1937; specialist certified by the American Board of Pathology, Inc.; member of the American Society of Clinical Pathologists; commander in the medical corps of the U. S. Naval Reserve during World War II; served as president of the California Pathological Society and as secretary of the San Francisco Pathological Society; died February 3, aged 38, of coronary thrombosis.

Thomas Perrine Edmundson, Pittsburgh; Hahnemann Medical College and Hospital of Philadelphia, 1912; for many years affiliated with the Shadyside Hospital; died in Tarpon Springs, Fla., February 2, aged 56, of coronary thrombosis.

Calvin H. English ⊕ Fort Wayne, Ind.; Fort Wayne College of Medicine, 1884; formerly chief medical director of the Lincoln National Life Insurance Company; veteran of the Spanish-American War; served on the staffs of Hope and Lutheran Hospitals; died February 4, aged 90, of pneumonia.

Thomas Alpheus Evans, Columbus, Ohio; Rush Medical College, Chicago, 1899; veteran of the Spanish-American War and World War I; served on the staff of the U. S. Veterans Bureau; died in St. Anthony's Hospital February 3, aged 75, following an operation.

Julian Vincent Flaig, Philadelphia; Jefferson Medical College of Philadelphia, 1932; certified by the National Board of Medical Examiners; served during World War II; died in Pennsylvania Hospital Dec. 11, 1947, aged 49, of pulmonary embolus and carcinoma of the pancreas.

Lawrence Eddy Goldman; St. Louis; Washington University School of Medicine, St. Louis, 1928; member of the American Medical Association; specialist certified by the American Board of Pediatrics, Inc.; instructor in clinical pediatrics at his alma mater; on the staffs of the St. Louis Children's and Jewish hospitals, a founder member of the Children's Research Foundation; died February 2, aged 44, of sarcoma.

Jane Lincoln Greeley, Jamestown, N.Y.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1897; member of the American Medical Association; died January 22, aged 83, of mitral regurgitation, influenza and Parkinson's disease.

Albert Molzahn Harris, Sioux Falls, S.D.; Univsity of Nebraska College of Medicine, Omaha, 1939; specialist certified by the American Board of Pathology; at one time instructor in pathology at the University of Arkansas School of Medicine in Little Rock; served during World War II; affiliated with McKennan Hospital and Sioux Valley Hospital; died January 28, aged 35, of brain tumor.

Charles Eleazer Hawkes ⊕ Greenville, R.I.; Harvard Medical School, Boston, 1901; an Affiliate Fellow of the American Medical Association; served during World War I; for many years associated with the Providence schools and Rhode Island Hospital in Providence; died January 31, aged 71, of coronary occlusion.

George Ives ⊕ St. Louis; Johns Hopkins University School of Medicine, Baltimore, 1911; specialist certified by the American Board of Pathology, Inc.; member of the American Society of Clinical Pathologists; affiliated with the Josephine Heitkamp Memorial and Missouri Baptist hospitals; died in the Barnes Hospital February 3, aged 64, of bronchogenic carcinoma.

John C. Lowe, Texarkana, Ark.; Meharry Medical College, Nashville, Tenn., 1900; died February 7, aged 71.

Thatcher Miller ⊕ San Diego, Calif.; College of Physicians and Surgeons, Baltimore, 1906; affiliated with the Mercy Hospital; died January 29, aged 62, of cerebral hemorrhage.

Boyd A. Muster, Lyons, Ky.; Louisville (Ky.) Medical College, 1907; formerly state senator and representative; found dead February 10, aged 65.

Michael Joseph Noone, Scranton, Pa.; University of Vermont College of Medicine, Burlington, 1904; censor of the Lackawanna County Medical Society; member of the American Medical Association; fellow of the American College of Surgeons; for many years affiliated with the Scranton State Hospital, St. Joseph's Children's and Maternity Hospital and the Mercy Hospital, where he died February 3, aged 64, of cerebral hemorrhage.

Carver Haines Osborne ⊕ Brookline, Mass.; Boston University School of Medicine, 1921; died January 3, aged 50, of coronary thrombosis.

Frederick Reis, Boston; Tufts College Medical School, Boston, 1903; member of the American Medical Association; professor of biochemistry at his alma mater; died February 4, aged 71, of cerebral disease.

Howard Risk, Oelwein, Iowa; University of Louisville (Ky.) Medical Department, 1909; member of the American Medical Association; served during World War I; past president of the Fayette County Medical Society; died February 5, aged 68, of cerebral hemorrhage.

Charles Emmet Saulsberry, New Brunswick, N.J.; Jefferson Medical College of Philadelphia, 1894; member of the American Medical Association; died in Piscataway January 1, aged 77, of coronary thrombosis.

Mary I. Thompson Shaffer, Sellersville, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1898; died Dec. 28, 1947, aged 76, of angina pectoris.

De La Ray Signor, Philadelphia; Medico-Chirurgical College of Philadelphia, 1914; died in a local hospital Dec. 10, 1947, aged 60, of status asthmaticus.

Frederick Glazier Smith ⊕ Somerville, Mass.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1893; past president of the Somerville Medical Society; during World War II served as a member of the Selective Service Board; affiliated with the Somerville Hospital; died January 9, aged 80, of coronary thrombosis.

Ellis H. Spainhour, Winston-Salem, N. C.; (licensed in North Carolina in 1898); member of American Medical Association; on the visiting staff of City Memorial Hospital; died Dec. 17, 1947, aged 76, of heart disease.

Fred K. Strasser, Hemet, Calif.; Homeopathic Medical College of Missouri, St. Louis, 1889; died January 20, aged 92, of heart disease.

Harold Linson Stratton, Worcester, Mass.; Tufts College Medical School, Boston, 1939; member of the American Medical Association; interned at Lowell General Hospital in Lowell, Mass.; served a residency at Boston State Hospital in Boston and the Worcester State Hospital; certified by the National Board of Medical Examiners; died in the Worcester City Hospital January 31, aged 57, of aneurysm of the arch of the aorta.

Charles Ira Trullinger, Harrisburg, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1903; member of the American Medical Association; for many years on the staff of the Harrisburg Hospital; died January 21, aged 66, of uremia, nephrosclerosis and arteriosclerosis.

Alvin Preston Utterback, Brackettville, Texas; University of Nashville Medical Department, 1910; member of the American Medical Association; city and county health officer and local physician for the Southern Pacific Railroad; past president and secretary of the Medina-Uvalde-Maverick-Val-Verde-Edwards-Real-Kinney-Terrell-Zavala Counties Medical Society; died in a hospital at New Orleans January 4, aged 59, after an operation for carcinoma of the right lung.

Luigi P. Verde, Boston; Regia Università di Napoli Facolta di Medicina e Chirurgia, Italy, 1900; member of the American Medical Association; died January 8, aged 72, of coronary occlusion.

Edward Francis Weir ⊕ Meadville, Mo.; University Medical College of Kansas City, Mo., 1899; president of the Linn County Medical Society; died January 30, aged 70, of heart disease.

Joseph Coulter Wiley, McKeesport, Pa.; University of Louisville (Ky.) School of Medicine, 1913; served during World War I; died Dec. 19, 1947, aged 60, of multiple sclerosis.

Edgar M. Wilson, Jefferson, Wis., Northwestern University Medical School, Chicago, 1891; died January 1, aged 83.

H. Fitzhugh Wolford, McKinney, Texas; Memphis (Tenn.) Hospital Medical College, 1904; member of the American Medical Association; past president of the Collin County Medical Society; served as city health officer; died January 6, aged 65, of heart disease.

William S. Wray, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1894; an officer during World War I; served as secretary of the Medical Club of Philadelphia; died in the Germantown Hospital February 2, aged 74, of gastric ulcer with hemorrhage and bronchopneumonia.

Francis Oliver Yost ⊕ Los Angeles; Harvard Medical School, Boston, 1893; one of the founders and formerly professor of pediatrics at the College of Physicians and Surgeons; died in the California Hospital January 30, aged 76, of carcinoma of the colon.

Randall Zimmerman, Wilmerding, Pa.; Jefferson Medical College of Philadelphia, 1904; died in Los Angeles Dec. 11, 1947, aged 68, of coronary occlusion.

George Frederick Zinninger ⊕ Canton, Ohio; Starling Medical College, Columbus, 1892; member of the House of Delegates of the American Medical Association in 1932, 1933, 1937 and 1938; past president of the Stark County Medical Society; died January 28, aged 80.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 23, 1948.

Attempt to Compose the Differences Between Government and Medical Association

In the conflict between the British Medical Association and the government over the National Health Service the Royal Colleges of Physicians, Surgeons and Obstetricians and Gynecologists have made an attempt at mediation. The Royal College of Physicians has sent to the Minister of Health two resolutions. The College affirms its desire for unity and recognizes that the comprehensive health service cannot be successful without the willing cooperation of all branches of the medical profession. It believes that this can be furthered if the Minister of Health makes clear in an amending act that a whole time service shall not be introduced by regulation, but that if any future government desires to introduce such a service a fresh Act of Parliament would be necessary. The college of physicians reaffirms its opposition to a whole time service. Second, it states that a principal cause of the present discontent with the National Health Service is the power possessed by the Minister of Health to change its character by regulations. The college therefore suggests that an amending bill be introduced to make regulations that affect the service subject to special procedure.

These resolutions of the Royal College of Physicians have received the general approval of the Council of the Royal College of Surgeons. In a letter to the Minister of Health the president wrote: "It is thought, however, that while the legislation suggested would relieve members of the medical profession of one of their most serious apprehensions, it would not be sufficient to secure the cooperation of all branches of the profession. It is therefore hoped that you will make such modifications in the present plans for the National Health Service, particularly in regard to the method of remuneration of general practitioners, as will bring them more into line with the views of the large majority of doctors and thus encourage members of the profession to give the service their general support."

In the House of Commons the Minister of Health, Mr. Bevan, replied. He said that he had been trying to determine what was really and sincerely worrying the doctor. No doubt as experience was gained many modifications would be found which would improve the scheme. But it seemed to him that beyond this the key to the physicians' uneasiness was some instinctive fear that the real objective of the act was a full time state medical service. He had given an assurance to the contrary for the present government, but he could not read into the minds of future governments. However, it now seemed clear to him that more than a spoken assurance was needed, and he was willing to do anything to banish apprehension for good. The Royal College of Physicians had made useful suggestions, with which the other royal colleges agreed, that he should make it statutorily clear that a whole time service would not be brought in by regulation but would require further legislation to make it possible. His colleagues and he accepted that most cordially. With regard to the disputed effect of the act on partnership agreements, he was about to set up an expert legal committee to advise him.

He then dealt with the profession's objection to the part payment of physicians by a sum of $1,200 a year as the "thin edge of the wedge" of a system of total payment in this way, and so the prelude to a whole time service. He had always considered it an assurance for the young beginner to have this payment. However, if physicians read sinister intentions in this, the object could be achieved in another way. Let all new entrants to practice have this assured payment of $1,200 for a period of, say, three years. Then let each decide for himself whether to forego it and pass to a system of plain capitation fees. He had no intention of interfering with the ordinary rights of doctors to express themselves in speech and writing with absolute freedom.

These statements of the Minister of Health were received with approval in all parts of the House of Commons and also by the council of the British Medical Association. A further meeting between representatives of the association and the minister has been arranged. The association has arranged the following: (1) With view to clarifying the situation a small number of written questions shall be submitted to the minister. (2) The minister shall be asked to discuss immediately the questions submitted. (3) After the minister's replies have been received and considered, another plebiscite of the whole profession is to be carried out by the association, as it is believed that no decision should be taken without this step.

Membership of the British Medical Association

The latest figures show that of 68,350 doctors registered in the British Isles 58,195 are members of the British Medical Association, a record number. This is 75 per cent of the total number, and, if retired practitioners are eliminated, amounts to 77.5 per cent. Between 1935 and 1940 the associations' membership increased by 5,000, but since 1940 the apprehensions aroused by the scheme of the socialist government to nationalize the practice of medicine have produced the unprecedented increase of 19,000.

Postgraduate Students from Czechoslovakia

In consequence of the downfall of Germany and the disastrous effects of her occupation of other European countries, Britain has become more than ever a medical Mecca. As the latest manifestation of this, eighty young Czechoslovak doctors are to work this year in British hospitals, as arranged by the ministers of health of both countries. They will attend hospitals in London, Birmingham, Bristol, Cardiff, Edinburgh, Glasgow, Leeds, Liverpool, Manchester, Newcastle and Sheffield. Fifteen will be in Britain for three months, the remainder for a shorter time.

BRAZIL

(From Our Regular Correspondent)

Rio de Janiero, April 16, 1948.

Relationship Between Some Factors of the Vitamin B Complex

Dr. F. A. Moura Campos, professor of physiology at the University of São Paulo, recently published a new paper on the series of experiments he is performing on the physiology of vitamins. He reports the interrelationship between some factors of the vitamin B complex. Association of thiamine and riboflavin was considered first, and later of thiamine and pyridoxine. It was shown that thiamine is necessary to the complete utilization of riboflavin. In animals deprived of viatmin B_1 the growing capacity of riboflavin was not fully observed. In animals deprived of vitamin B_2 the *biologic activity of thiamine was reduced.* Pyridoxine increases the activity of thiamine in connection with the cure and prevention of beriberi. Wistar rats received a diet free from vitamin B complex. When the first attack of beriberi was observed thiamine was given, and the length of the interval until the next attack was recorded. This interval was called the protecting period. In earlier experiments it was seen that the length of the period was gradually reduced. In the present paper it was shown that pyridoxine given together with thiamine could lengthen the rotecting period. Dr. Campos believes that to lain the sparing capacity of pyridoxine its fect on the metabolism of the lipids should be considered.

Incidence of Diabetes

Dr. Vasco Azambuja, of the Nossa Senhora do Socorro Hospital, an institution which serves a district of Rio de Janerio with a population of poor economic condition, published a paper on the incidence of diabetes in 5,000 women examined at the outpatient department of that hospital and 635 men in treatment on the wards. The cases of diabetes discovered among the women were 14, or 2.8 per thousand, and among the men were 6, or 9.5 per thousand. For the total of 5,635 patients of both sexes there were 20 cases of diabetes, or 3.5 per thousand. This is a low incidence of the disease, as has been shown for the whole country, in particular a few years ago by Dr. F. Carvalho Nunes in a detailed study previously reported. An important contribution to this low incidence is the relatively young age of the population of Rio de Janeiro (average age 26.5 years for Rio de Janeiro in 1940, as against 31.1 years for the United States in the same year). The average age of the 635 men was 41.4 years and that of the 5,000 women was 33 years. The low percentage of Jews in the population of Rio de Janeiro is certainly also a contributing factor. Still another factor is the low contribution of proteins in the diet of the population, as shown by a high hydrocarbon intake, varying from 60 to 80 per cent of the total caloric value of the diet in different sections of Brazil. In a large percentage of Dr. Azambuja's cases diabetes was associated with other diseases: 70.8 per cent of the diabetic patients had arterial hypertension, 41.6 per cent had syphilis, 23 per cent had rheumatism of various forms, 20.8 per cent had anemia, 12.5 per cent had pathologic conditions of the biliary ducts and 4.1 per cent had pulmonary tuberculosis. *In the majority of* the 20 cases the diabetes was of a slight and benign f

Cam Against Manson's Schistosomiasis

Dr. Geth of the field staff of the Oswaldo Cruz
Institute, pu progress rep on the experimental
demonstration laxis of M 's schistosomiasis at
Catende count Pernambuco. st district of the
county was cho onstratic of the favorable
conditions it pr easy acce , dams and
ponds; the relati isity of , and the
high degree of ised l service of
the local sugar mi rt of population
lives on the shores of the Panelas River, which is used for bathing, fishing and laundry purposes, and for the disposal of excreta. The commonest snail of this district is Tropicorbis centimetralis, of which 2,631 specimens were examined with 199, or 7.56 per cent, positive for Schistosoma mansoni. Microscopic examination of the feces of 6,559 persons showed that *3,482 were positive for S. mansoni.* The campaign against schistosomiasis, conducted for two years, has included five measures: (1) destruction of the intermediary host by the use of slaked lime; (2) the medical treatment of human carriers of the parasite; (3) construction of public baths and public tanks to discourage the use of the river for bathing and laundering; (4) construction of sanitary privies to decrease the contamination of soil and water, and (5) health education and propaganda. For the destruction of intermediary hosts twenty-seven applications of slaked lime were made at three month intervals, following the technic employed by Luttermoser in Venezuela (four to five parts per thousand). The measure was so effective that after a few applications of lime it was difficult to find snails in the district. But the results are temporary, as the snails increase after cessation of the applications. For the treatment of human carriers of the parasite several antimony preparations were tried. The best results were obtained by intravenous injections of antimony and potassium tartrate. A total of 1,990 persons were treated.

Shigellosis in Children

Dysentery, mainly bacillary, is still prevalent in Rio de Janeiro, as revealed by an average annual death rate of 8.5 per hundred thousand persons for the last three years. As a contribution to the solution of this problem, Drs. Arlindo de Assis and Vera L. Ribeiro, of the Fernandes Figueira Hospital for Children, published the results of an investigation of 1,331 children whose feces were examined for Shigellae. There were 807 children with intestinal discharges containing mucus, pus or blood, and in 237 of them (29.4 per cent) the authors could isolate various types of *Shigellae.*

Among 138 children examined post mortem, only 11 clinically had been suspected of intestinal disease, and 4 of these presented intestinal lesions produced by Shigellae; 3 others showed similar lesions caused by a special type of Proteus morgani characterized by a specific flagellar antigen common to all these pathogenic cultures. Postmortem examination of the 127 children without previous suspicion of intestinal disease disclosed lesions of acute enteritis as the cause of death of 22 of them. Six others, whose death was ascribed to nonintestinal diseases, presented concomitant specific enteritis by Shigellae.

These facts emphasize the importance of sources of infection in members of the household who are carriers of bacillary dysentery. Forty-five per cent of the Shigellae disclosed were of the Flexner group, with predominance of types I, II, III, I.III and II.VII (Weil). In decreasing importance there were Shigella paradysenteriae (18.7 per cent), Shigella alkalescens type I (9.9 per cent), Shigella dysenteriae (7 per cent), Shigella dispar type I Assis (7 per cent), Shigella ambigua (4.8 per cent), bacilli of the Large-Sachs group (2.6 per cent), Pr. morgani (2.2 per cent), Sh. dispar type II Assis (0.7 per cent) and individual samples of Sh. alkalescens types II and III and Sh. pseudodispar Assis.

Brief Items

The Brazilian Society of Sterility was founded recently in Rio de Janeiro, to study the medical and social problems related to sterility, abortion and contraceptive practices. The first president of the society is Dr. Arnaldo de Moraes, professor of clinical gynecology, University of Rio de Janeiro; the governing board includes Drs. Goulart de Andrade, A. Campos de Paz and Clovis C. Costa.

Medical Motion Pictures

FILM REVIEWS

The Fenestration Operation for Otosclerosis. 16 mm., color, silent, 1,175 feet (one reel), showing time forty-three minutes. Prepared by George E. Shambaugh Jr., M.D., Northwestern University Medical School, Chicago. Produced in 1947 by Mervin La Rue, Inc., Chicago. Endoscopic photography by Paul H. Holinger, M.D. Procurable on loan from the Audio-Visual Medical Education Department, Northwestern University Medical School, Chicago.

The details of the operation usually followed with difficulty even by an assistant, owing to the depth of the field and limited exposure, are clearly demonstrated. They are photographed in this production with such magnification as to make the fenestra, which is slightly over 1 mm. in width, clearly visible. The membranous labyrinth which is thereby exposed is also seen easily. The views of the surgical procedures are preceded by a series of diagrams and animated drawings to demonstrate the anatomy, the normal action of the sound-conducting mechanism, the development of a typical otosclerotic focus and its limiting effect on movement of the stapes, the various steps in the surgical procedure and, finally, the action of the new fenestra in enabling sound to reach the inner ear.

The animated drawings of the surgical procedures give a clear conception of the surgical objectives, and the repetition of the appropriate sections previous to each step in the operation is of great value in clarifying the procedure. The value placed on some minor details of technic such as continuous irrigation, wide exposure of enchondral bone beyond the fenestrated area and the use of a smooth gold burr in preventing osteogenesis may meet with some question on the basis of evidence so far available. From the point of view of physiology and acoustics a weakness exists in the portrayal of the action of the sound-conducting mechanism, since such details as axis of rotation, reduction of amplitude of movement and rocking motion of the stapes are not shown; also, the validity of the interpretation of the acoustics of the new conducting mechanism has yet to be established.

An objection may be raised that the references to results of the operation in the latter part of the film fail to give adequate information. In its present state a false impression may be created both as to end results to be expected and the relative value of a hearing aid. Since these questions have been raised in the film, the necessity is created for supplying fuller information as to failures and partial failures as well as to the degrees and percentages of successes. Such information could be easily added. From the surgical point of view the film is an excellent demonstration of the objectives and the surgical technic. The perfection with which the latter is carried out may fail to impress sufficiently the care and precision employed in its execution. The film is well captioned. It is suitable for otologists, general medical audiences and graduate students.

Appendicitis in Childhood. 16 mm., black and white, sound, 1,600 feet (one reel), showing time forty minutes. Prepared in 1941 by Joseph Brennemann, M.D., formerly professor of pediatrics, University of Southern California School of Medicine, Los Angeles. Produced by and procurable on loan from Mead Johnson & Company, Evansville, Ind.

The author gives a summary of his observations on appendicitis in childhood. This film will long be important because it expresses the author's sound clinical judgment. As a historical film it will be of interest for years to come. This lecture film shows only Dr. Brennemann. A few charts are used to illustrate his talk. His gestures are pointed and effectively supplement the spoken word. The film will hold the interest of those professionally interested in the clinical manifestations and the differential diagnosis of acute appendicitis in children. This film can be recommended to pediatricians, surgeons, general practitioners and medical students.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, May 22, page 406.

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: Parts I & II. Various centers, June 21-23. Final date for filing application is May 22. Exec. Sec., Mr. Everett S. Elwood, 225 S. 115th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: Written. Various Centers, July 16. Oral. Philadelphia, Oct. 10. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York 22.

American Board of Dermatology & Syphilology: Oral. Groups A & B. Ann Arbor, Oct. 21-23. Final date for filing application is Aug. 2, 1948. Written. Ann Arbor, Sept. 9, Sec., Dr. G. M. Lewis, 66 E. 66th St., New York 21.

American Board of Internal Medicine: Written, Oct. 18. Final date for filing application is June 1. Asst., Sec-Treas., Dr. W. A. Werrell, 1 West Main St., Madison 3, Wis.

American Board of Neurological Surgery: Oral. Chicago, June 1949. Final date for filing application in Jan. 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

American Board of Obstetrics and Gynecology: Part I. Various Centers, Feb. 4, 1949. Final date for filing application is Nov. 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 1.

American Board of Opnthalmology: Oral. Chicago, Oct. 6. Written. Various centers, Jan. 1949. Final date for filing application is July 1, 1948. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopedic Surgery: Part II. Chicago, January 1949. Final date for filing application is August 15. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

American Board of Otolaryngology: Oral. Chicago, June 15-19. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

American Board of Pathology: Chicago, Oct. 8-9. Final date for filing application is Oct. 1. Sec., Dr. Robert A. Moore, 507 Euclid Ave., St. Louis.

American Board of Pediatrics: Chicago, June 25-27. Seattle, Sept. 10-12. Atlantic City, Nov. 17-19. Written, July 30. Sec., Dr. Lee F. Hill, 718 Royal Union Bldg., Des Moines, Iowa.

American Board of Plastic Surgery: Examinations are given in June and November of each year in the hometown of applicants. Sec.-Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis.

American Board of Psychiatry and Neurology: Oral. All Groups, San Francisco, October. Final date for filing application is July 15. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Radiology: Nov. Final date for filing application is Sept. 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: Written. Part I. Oct. Final date for filing application is July 1. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: Chicago, Feb. 12-16, 1949. Sec., Dr. Harry Culver, Route #13, Sunnyside Rd., Minneapolis 4.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Paternity: Results of Blood-Grouping Test Not Binding On Jury.—The plaintiff filed a bastardy action against the defendant, alleging him to be the father of a child born to her on May 23, 1946. From a judgment for the plaintiff, following a jury trial, and from an order overruling the defendant's motion for a new trial, the defendant appealed to the Supreme Judicial Court of Maine.

There was ample evidence, said the court, to satisfy the jury that the defendant had sexual intercourse with the complainant on Aug. 12, 1945 and that she gave birth to a child on May 23, 1946. Except for the blood-grouping test referred to later, there was no evidence whatsoever that any one other than the defendant could have been responsible for her pregnancy. He did not take the stand to deny her story and in conversations with her mother and father inferentially admitted that he was responsible for her condition. In accordance with the provisions of Revised Statutes 1944, chapter 153, section 34, the court ordered a blood-grouping test to be made to determine whether or not the paternity of the defendant could be excluded. The value of these tests in determining the issue of nonpaternity, said the Supreme Judicial Court, was recognized by the legislature of this state nine years ago when the aforementioned statute was enacted. This statute makes it mandatory for the court, on motion of the defendant in a bastardy case, to order such a test and makes the result admissible in evidence where it shows nonpaternity. The tests in the instant case were made by, or at least under the direction of, Dr. Hooker, one of the leaders in this research work. According to his testimony they show that the mother's blood group formula is O-M-N, that the child's is O-M, and that the defendant's is A-N. A and O in these cases refer to what are called groups, M and N to types. And the doctor states categorically that it is a biologic law that a male with type N blood cannot be the father of a child with type M blood by a mother with type M blood. By the application of this law to the case before us, he definitely excludes the defendant as the father of this child.

We are not disposed, said the Supreme Judicial Court, to close our minds to conclusions which science tells us are established. Nor do we propose to lay down as a rule of law that the triers of fact may reject what science says is true. The application of scientific principles to the facts of a particular case, however, where so many important issues, life and death, legitimacy or illegitimacy, and the right of inheritance, may be involved, still remains the province of the court. We have here, the court continued, a clearcut question: In the face of unrefuted evidence that the complainant and the respondent had sexual intercourse on a certain date, that a child was born within the normal period of gestation, and in the absence of any evidence that any one else could have been the father of that child, must we accept the testimony of the doctor as to the blood tests as conclusive on the issue of nonpaternity? In weighing the overwhelming evidence for the plaintiff, outside of the blood tests, did not the jury have the right to decide that there may have been some error in the handling of blood or serums or some mistake in the conclusions of laboratory technicians as to what they found? We do not believe that the statute intended to make the result of a blood-grouping test conclusive on the issue of nonpaternity. It says only that the result of such test "shall be admissible in evidence." In a case where testimony is conflicting or where access by others to the plaintiff may be shown, such test may be decisive, but that is not the case before us. To sustain defendant's motion would be to hold as a matter of law that such a blood test is conclusive. That we cannot do. The statute does not require it, and no case which we have found so holds. Believing as we do that the jury could, in considering all the testimony, have rejected the accuracy of the blood-grouping tests in this instance, the court concluded, we cannot say that their finding is manifestly wrong. Accordingly the judgment in favor of the plaintiff was affirmed and the defendant's motion for a new trial overruled.—*Jordan v. Davis, 57 A. (2d) 209 (Maine, 1948).*

Charitable Hospitals: Effect of Indemnity Insurance on Liability for Negligence.—The plaintiff filed suit against the defendant hospital for damages alleged to have resulted in the death of his infant son caused by the negligence of the defendant and its servants and agents. From a verdict and judgment in favor of the plaintiff the defendant appealed to the Supreme Court of Errors of Connecticut.

The determinative issue on this appeal, said the Supreme Court of Errors, is the effect to be accorded to the existence of insurance on the immunity of a charitable hospital for tort liability. The plaintiff, as administrator, charged the hospital and its servants and agents with negligence causing the death of his infant son, in answer to which the defendant alleged that it was a charitable corporation. The plaintiff pleaded in reply thereto that the defendant carried insurance indemnifying it and its property, funds and assets against all liability for negligence and agreed to limit his recovery to the indemnity procurable under the insurance policy. He argued that by carrying insurance and thus protecting its trust funds and other property from depletion the defendant was estopped from claiming the charitable immunity. At the trial the plaintiff admitted that the defendant was a charitable corporation and the defendant admitted that it was insured.

The plaintiff's claim, said the Supreme Court of Errors, has a certain meritorious basis, for, except as to premiums, the funds of the hospital are protected to the extent of the collectible insurance when it is insured. Nevertheless, it is not valid. If the charitable institution is not liable for the negligence alleged, it cannot be made liable because it took out insurance which would cover a judgment recovered against it. The fact is irrelevant to the question of liability. Continuing, the Supreme Court of Errors pointed out that if the plaintiff's contention should prevail, the result would be that a plaintiff negligently injured in an insured hospital would get judgment while a plaintiff injured in an uninsured hospital would not. The distinction, the court concluded, has no logical basis. Accordingly the judgment in favor of the plaintiff was set aside and a new trial was ordered.—*Cristini v. Griffin Hospital, 57 A. (2d) 262 (Conn., 1948).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

Archives of Internal Medicine, Chicago

81:1-114 (Jan.) 1948

Cryptococcosis: Report of Case and Experimental Studies. E.B. Reilly and E.L. Artman.-p. 1.

Complete Atrioventricular Block in Diphtheritic Myocarditis: Report of Case with Serial Electrocardiographic Tracings. F.C. Massey and W.J. Walker.-p. 9.

*Lipomelanotic Reticular Hyperplasia of Lymph Nodes: Report of 6 Cases. T.C. Laipply.-p. 19.

Adenomas of Adrenal Cortex. R.R. Commons and C.P. Callaway.-p. 37.

Metabolic Studies in Diabetic Acidosis: II. Effect of Administration of Sodium Phosphate. M. Franks, R.F. Berris, N.O. Kaplan and G.B. Myers.-p. 42.

*Chronic Recurrent Pancreatitis: Clinical Study of 20 Cases. S.N. Maimon, J.B. Kirsner and W.L. Palmer. -p. 56.

Acute Megakaryocytic Leukemia. J.B. McDonald and Jewell G. Hamrick.-p. 73.

Syphilis: Review of Recent Literature. F.W. Reynolds and J.E. Moore.-p. 85.

Lipomelanotic Hyperplasia of Lymph Nodes.--Laipply reports 6 cases of chronic dermatitis, pruritus and lymphadenopathy. He stresses that chronic dermatitis, particularly when accompained with pruritus,may result in a characteristic type of hyperlasia of lymph nodes. The lymph nodes are usually moderately enlarged, discrete, firm and nontender. They frequently have a yellow tinge and occasionally show dark brown mottling. The microscopic features include slight distortion of the normal architectural pattern, severe hyperplasia of reticular cells, which contain melanin and sudanotropic droplets, and infiltration with eosinophils. The secondary centers of the lymph follicles are sometimes evident, but the notable proliferation of reticular cells is in the pulp of the lymph nodes. In many instances an incorrect clinical diagnosis of lymphoblastoma may be made because of the prominence of the lymphadenopathy. A diagnosis of lipomelanotic reticular hyperplasia of lymph nodes does not preclude the possibility of the concomitant existence of a lymphoblastoma. Thus in 2 of the cases reported in this paper there were changes in the blood and tissues that warranted the diagnosis of Schilling's monocytic leukosis. Lipomelanotic reticular hyperplasia of lymph nodes is a benign lesion that is secondary to chronic pruritic dermatitis. Although it may be associated with leukemia, Hodgkin's disease or lymphosarcoma, it has no direct relationship to them.

Chronic Recurrent Pancreatitis.--Maimon and his associates review observations on 20 cases of recurrent pancreatitis, 12 in men and 8 in women. Half of the patients were less than 50 years of age. In 8 the symptoms had been present for less than 1 year, in 12 the average duration was four years. The condition is characterized by repeated bouts of severe pain in the upper part of the abdomen. A diabetic type of curve following the oral test for dextrose tolerance in the presence of such attacks suggests the presence of pancreatitis. Pancreatic calcifications are not infrequently found roentgenologically. Disturbances of carbohydrate metabolism are frequent. Steatorrhea is not uncommon. The possibility of pancreatitis must be especially considered in cases in which the patient continues to have attacks of pain simulating that of biliary colic after cholecystectomy has been performed.

Archives of Pathology, Chicago

45:1-134 (Jan.) 1948

Primary Systemic Amyloidosis. Lalla Iverson and A. B. Morrison.—p. 1.

Mechanisms Concerned in Necrosis Effected by Unsaturated Fatty Acid. E. Mylon and E. R. Smith.—p. 21.

Myocardium After Sulfonamide Therapy. R. M. Fawcett.—p. 25.

*Chronic Carbon Dioxide Poisoning: Experimental Studies. H. Meessen.—p. 36.

Hepatic Abscess. Factors Determining Its Localization. T. D. Kinney and J. W. Ferrebee.—p. 41.

Chemical Character of Enterochromaffin Cells. G. Gomori. p. 48.

Triple Synchronous Primary Carcinoma. B. S. Gordon.—p. 56.

Lymphoid Diseases. Hodgkin's Granuloma, Giant Follicular Lymphadenopathy, Lymphoid Leukemia, Lymphosarcoma and Gastrointestinal Pseudoleukemia. D. Symmers.--p. 73.

Chronic Carbon Dioxide Poisoning. Meessen points out that employees of wine cellars and cold storage plants using solid carbon dioxide and crews of submarines may undergo prolonged exposure to an atmosphere containing sublethal concentrations of carbon dioxide. He describes anatomic reactions observed in dogs, rabbits, guinea pigs and rats exposed repeatedly and over long periods to sublethal doses of atmospheric carbon dioxide. The animals presented degenerative changes in the lungs, the liver, the kidney and the brain. These lesions were the result of the increased carbon dioxide tension and were not caused by anoxemia.

Journal of Lab. and Clinical Medicine, St. Louis

33:1-134 (Jan.) 1948

*Further Experiences with Streptomycin Therapy in United States Army Hospitals. E. J. Pulaski and S. F. Seeley. —p. 1.

*Serologic Studies of Influenza Made in Boston During Winter of 1945-1946. M. Finland, Mildred W. Barnes, M. Meads and E. M. Ory.—p. 15.

Influenza and Pneumonia. M. Finland, E. M. Ory, M. Meads and Mildred W. Barnes.—p. 32.

Nutritional Status and Infection Response. J. Metcoff, Dorothy B. Darling, Margaret H. Scanlon and F. J. Stare.—p. 47.

High Vitamin A Intake and Blood Levels of Cholesterol, Phospholipids, Carotene, and Vitamins C, A, and E. J. T. Van Bruggen and J. V. Straumfjord.—p. 67.

Comparative Study of Micro- and Macroelectrophoretic Analysis of Human and Rat Serum. P. P. Cohen and Frances L. Thompson.--p. 75.

Sternal Marrow Hemosiderin. C. E. Rath and C. A. Finch. —p. 81.

Occurrence of Toxoplasma Neutralizing Antibodies in Various Disease Conditions. I. Ruchman.--p. 87.

Streptomycin in Army Hospitals.-Pulaski and Seeley say that the investigation of streptomycin that was begun in 1945 is still continuing. They review experiences with streptomycin in 1,200 patients. The wide variation in sensitivity of bacterial species to streptomycin emphasizes the importance of checking the causative organisms in the laboratory for their susceptibility prior to therapy wherever possible. Present indications for streptomycin include gram-negative infections of the urinary tract; tularemia, bacteremia, pneumonia and meningitis due to susceptible organisms, and certain otolaryngologic conditions associated with gram-negative bacteria. Bacterial pneumonitides caused by streptomycin-susceptible organisms are likely to manifest good responses. Results in bronchiectasis and empyema have not been spectacular. Acute brucellosis with bacteremia was favorably influenced when streptomycin was given in combination with sulfadiazine. Streptomycin is of no value against chronic brucellosis. Results in typhoid have not been encouraging. Streptomycin shows promise in the treatment of bacillary dysentery refractory to sulfonamide drugs and in some types of Salmonella infection. It may be influential in bringing about a remission in active idiopathic ulcerative colitis with severe secondary infection caused by susceptible organisms. The drug is not useful against amebic colitis. Striking results have been obtained with streptomycin therapy in a few patients with early diffuse peritonitis, but the most consistent beneficial effects were noted when the streptomycin was given in combination with penicillin. Streptomycin is complementary to penicillin in the surgical management of wound infections and may be of value in certain lesions heavily infected with fecal organisms. Streptomycin has been useful in certain forms of tuberculosis, but its use is not without danger. Untoward reactions, especially on the vestibular portion of the eighth cranial nerve, are a common feature of the courses of therapy necessary to affect tuberculous lesions. These effects are slow to reverse themselves, and some damage may be permanent.

Serologic Studies of Influenza.-Finland and his co-workers state that both influenza B and influenza A were prevalent in Boston during the winter of 1945-1946. Influenza B was responsible for the major outbreak that occurred in December 1945, and no acute cases proved to be due to this virus were encountered after the first week in January. Cases of serologically proved influenza A were encountered almost entirely after the middle of January. Two cases were observed in which there was definite serologic evidence of consecutive infections first with influenza B and a few weeks later with influenza A. There was also some evidence of symptomless infections with viruses of both types. Almost all the patients in whose serums a rise in specific antibodies to one or another of the influenza viruses was demonstrated had respiratory and systemic symptoms which were characteristic of clinical influenza. Similar symptoms were noted during the same period in other persons whose serums failed to show such a rise. A large proportion of the patients who failed to show a rise in influenzal antibodies, however, had an illness which was more like the common cold or had predominantly gastrointestinal symptoms.

Journal of Nutrition, Philadelphia

35:1-136 (Jan.) 1948. Partial Index

Congenital Malformations Induced in Rats by Maternal Vitamin A Deficiency: II. Effect of Varying Preparatory Diet on Yield of Abnormal Young. J. Warkany and Carolyn B. Roth. —p. 1.

Nutrition of Mouse: II. Effect of Diet on Bacterial Flora of Intestine and Cecum. Lorraine S. Gall, P. F. Fenton and G. R. Cowgill. —p. 13.

Effects of B Vitamins, Liver and Yeast on Growth Under Cold Room and Room Temperature Conditions. E. D. Smith, B. H. Ershoff, R. J. Winzler and H. J. Deuel Jr.-p. 39.

*Effect of Vegetarian Self-Selection Diets on Reproduction and Growth of Offspring of Rats. A. J. Carlson and F. Hoelzel. —p. 49.

Human Utilization of Ascorbic Acid from Mustard Greens. Martha E. Hollinger. —p. 73.

*Further Experiments on Relation of Fat to Economy of Food Utilization: III. Low Protein Intake. C. E. French, A. Black and R. W. Swift. —p. 83.

Effect of Dietary Restriction of B-Complex Vitamins and Protein on Excretion of Creatinine by Human Subjects. T. E. Friedemann, Velma M. Kinney, G. H. Berryman and others. —p. 117.

Effect of Vegetarian Diets on Reproduction of Rats.—Carlson and Hoelzel found that rats on vegetarian self selection diets including corn (whole kernels), wheat (whole grains), pearled barley, rolled oats, sunflower seeds, peanuts, soy beans, green peas, corn germ meal, wheat germ meal, brewers' yeast, alfalfa leaf meal, sodium chloride, lettuce and celery cabbage were found to be generally fertile but raised less than 25 per cent of their offspring. They raised none in winter. The growth of these young was also subnormal, and severe rickets commonly developed.

Fat Utilization and Low Protein.--French, Black and Swift in previous studies had demonstrated that liberal amounts of fat in the diet of the growing rat resulted in a superior energy utilization of the diet as a whole. In the preparation of the diets used in these experiments an effort was made to furnish all nutrients in optimum quantities for the most efficient utilization of the food energy, including an excellent quality of protein mixture furnishing 22 per cent protein in the diet. In view of the shortages of foodstuffs in many areas, especially of fat and protein, it seemed of further interest to investigate the effect of decreases in the dietary protein in similar high and low fat diets on the resultant utilization of energy. Studies on rats indicated that decreasing the protein intake from the former level of 22 per cent to 7 per cent of the diet did not alter the previously reported superior energy utilization of high fat diets by the growing rat. In the present experiment an increased weight gain, increased body gains of fat and energy and decreased heat production were associated with the high fat ration.

Laval Medical, Quebec

13:1-134 (Jan.) 1948. Partial Index

*Treatment and Cure of Primo-Secondary Syphilis With Bismuth. É. Gaumond. -p. 12.

Arteriosclerotic Dementia in a Man Aged 59. S. Caron. -p. 28.

Recklinghausen's Disease; Case Report and Anatomico-Clinical Observation. M. Samson and L. Patry. -p. 37.

Congenital Malformations; Micromelia - Macromelia. G.H. La Rue, P. Michel and G. Paradis. -p. 48.

*Obesity at Puberty. R. Lemieux and A. Martel. -p. 60.

Bismuth Therapy of Syphilis.—Gaumond treated 10 patients, 5 men and 3 women between the ages of 50 and 73, one girl aged 14 and 1 man aged 26, who had primo-secondary syphilis, with a bismuth compound alone. Various bismuth preparations were used, all of them insoluble bismuth salts containing 0.0646 Gm. to 0.08 Gm. of metallic bismuth per cubic centimeter. The dose injected by muscular route varied from 1 to 2 cc. Treatment was initiated with two to three injections per week. A course of treatment consisted of twelve to twenty injections. A two weeks' rest was given between the first and second series of injections, and the rest periods were prolonged with progress of the treatment. The total number of injections varied from seventeen to one hundred and fourteen. Except for mild gingivitis there were no untoward reactions. The patients were followed for one and a half to nine years. Nine patients had strongly, positive Bordet-Wassermann and Kahn reactions before treatment was instituted. The tenth patient showed Treponema pallidum in dark field examination. After six to nine months of the treatment the serum of all the patients became negative. The cutaneous mucosal lesions healed rapidly. On the average, nine months' treatment with two injections per week, the rest intervals not counted, seems to be sufficient to obtain a cure. In patients over 50 years of age treatment with trivalent arsenic is contraindicated. Basic treatment with a bismuth salt combined with penicillin may be the method of choice for early syphilis.

Obesity at Puberty.--Lemieux and Martel report 56 obese children, 38 girls and 18 boys, between the ages of 12 and 16 years. In contrast to earlier concepts it is suggested that obesity at puberty need not be caused by an endocrine disorder. Cases of hypophysial obesity are rare and cases of hypothyroid obesity are less frequent than usually believed. Twenty-four of the children had a normal basal metabolic rate; in 29 the basal metabolic rate was lowered and in 3 instances it was increased. There was almost no increase in the cholesterol level of the blood which may be considered as a more reliable proof of the activity of the thyroid in children. In 90 to 95 per cent of the cases an alimentary factor must be considered as the basic cause of the obesity, although the possibility of a temporary deviation in the endocrine system or the hypothalamus should not be excluded. The gluttony of the obese children may be favored by a psychological factor associated with lack of emotional maturity. Simple obesity seldom interferes with the course of puberty, which was normal in 33 of the author's cases, precocious in 14 and delayed only in 9. The obese children should be placed on a diet which provides for a daily ration of about 1,200 calories comprising 80 to 100 Gm. of carbohydrates, 60 to 80 Gm. of proteins and 40 to 50 Gm. of fats. Dextro-amphetamine administered in doses of 2.5 mg. before every meal diminishes the appetite and at the same time increases the physical capacity by intensifying the desire for activity. The administration of theophylline or of ammonium chloride may mobilize the endema of the tissues. Thyroid therapy is to be employed only in cases in which the basal metabolic rate is below 10 per cent.

New Jersey Medical Society Journal, Trenton

45:1-50 (Jan.) 1948

*Occupational Beryllium Poisoning in New Jersey: with Special Reference to Its Incidence, Diagnosis and Compensation. H. S. Martland, H. A. Brodkin and H. S. Martland Jr. -p. 5.
Treatment of Undulant Fever with Streptomycin. J. A. Strazza Jr. -p. 15.
Treatment of Peptic Ulcer with Casein Hydrolysate. M. Smith and B. Friedenthal. -p. 17.
Wilm's Tumor. A. O. Wilensky. -p. 21.
Hoarseness. F. J. Putney. -p. 23.
Background of Cancer Control Program. J. H. Kler. -p.27.

Occupational Beryllium Poisoning.--The Martlands and Brodkin present 4 fatal cases of beryllium poisoning. The first case occurred in 1934 but at that time was not recognized as having been caused by beryllium. In 1944 deaths were occurring among workers in a fluorescent lamp factory in Massachusetts who were exposed to a phosphor containing zinc beryllium silicate. The late Dr. L. U. Gardner of Saranac, N.Y., found a chronic pulmonary granulomatosis closely resembling a sarcoid as the cause of death in these patients and they were spoken of as the "Salem sarcoids." A case referred to the medical examiner of New Jersey in 1944 showed lesions practically identical to the so-called "Salem sarcoids." This case, which is the second of the 4 fatal ones presented here, again illustrates the difficulty in recognition of chronic beryllium poisoning. The third and fourth cases reviewed here were observed in 1947. Based on a study of these 4 cases, the Van Ordstrand report describing the exposure, symptomatology and pathology of acute beryllium poisoning, the Hardy and Tabershaw report describing the exposure, symptomatology and findings in chronic beryllium poisoning and the research done at Saranac by Gardner, who put chronic beryllium poisoning on a firm pathologic basis and produced the lesions in experimental animals, the authors are of the opinion that industrial beryllium poisoning is well established. In addition, in case 4 the recovery of beryllium in most of the organs allows to complete the postulates used in medicolegal work. The authors discuss the incidence, the signs and symptoms, the roentgenologic aspects, the differential diagnosis, the treatment and the compensation aspects of beryllium poisoning.

Public Health Reports, Washington, D. C.

63:97-128 (Jan. 23) 1948

Some Improvements in Performance Test for Rating Dishwashing Detergents. F. I. Norris and C. C. Ruchhoft.--p. 97.
Studies in Enterococcal Food Poisoning: I. Isolation of Enterococci from Foods Implicated in Several Outbreaks of Food Poisoning. L. Buchbinder, A. G. Osler and G. I. Steffen.--p. 109.

63:129-160 (Jan. 30) 1948

Comparison of Effectiveness of 5 and 10 per cent DDT Dusts for Control of Rat Fleas. H. P. Nicholson and T. B. Gaines. -p. 129.
Notes on Preparation of Chlorine-Demand-Free Water. S. Megregian. -p. 137.
Report of Brucellosis Outbreak at Federalsburg, Md. J. H. Steele and J. W. Hastings Sr. -p. 144.

63:161-200 (Feb. 6) 1948

Complement Fixation Test for Histoplasmosis: I. Technic and Preliminary Results on Aminal Serums. D. J. Tenenberg and A. Howell Jr. -p. 163.
Id: II. Preliminary Results with Human Serums. M. L. Furcolow, I. L. Bunnell and D. J. Tenenberg. -p. 169.
Efficiency of Methods for Isolation of Histoplasma Capsulatum. A. Howell Jr. -p. 173.
Studies of Fungus Antigens: II. Preliminary Report on Isolation of a Immunologically Active Polysaccharide from Histoplasmin. F. W. Cross and A. Howell Jr. -p. 179.
Verification of Diagnosis of Tuberculosis. C. E. Woodruff. -p. 184.
Mechanism of Immunity and Allergy in Tuberculosis. J. K. Weissfeiler. -p. 190.

West Virginia Medical Journal, Charleston

44:1-24 (Jan.) 1948

Some Practical Considerations in Management of Arthritis, J. L. Hollander.—p. 1.
*Psychiatric Considerations in Management of Tuberculosis. W. B. Rossman.—p. 7.
Tuberculosis Diagnostic Services in West Virginia. M. S. Lauder and E. P. Wells.—p. 10.
Renal Papillary Necrosis Complicating Diabetes Mellitus: Review of Literature with Case Report. R. J. Stevens, S. Werthammer and J. S. Pearson.-p. 12.

Psychiatric Problems in Tuberculosis.--Rossman believes that etiologic concepts of tuberculosis should be revised to include a consideration of the role that emotional conflict plays in the development of the disease. Two illustrative case reports are cited, showing the effect of emotional conflict on the progress of tuberculosis. The need for a unified program of medical, psychiatric and sociologic treatment of tuberculosis is stressed.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Rheumatic Diseases, London

6:195-262 (Dec.) 1947

*Psychogenic Rheumatism: Musculoskeletal Expression of Psychoneurosis. E.W. Boland. -p. 195.

Psychogenic Arthralgia. H.P. Wright. -p. 204.

Case of Calcinosis Circumscripta. D.L. Woolf. -p. 208.

Significance of Subcutaneous Nodules in Rheumatoid Arthritis. M. Lucchesi and O. Lucchesi. -p. 219.

Hypersensitivity to Colchicine. J.G. Macleod and L. Phillips. -p. 224.

Agglutination of Hemolytic Streptococci (Group A) in Serum from Patients with Rheumatoid Arthritis. K. Kalbak. -p. 230.

Etiology of Fibrositis: Review. M. Valentine. -p. 241.

Psychogenic Rheumatism.—Boland lists disturbances in the gastrointestinal, cardiovascular, respiratory, genitourinary and nervous systems and in the skin that are generally recognized as psychosomatic. He points out that physicians are not so familiar with the fact that disabilities of the locomotor system frequently result from psychic causes. He shows that psychogenic rheumatism must be included among the common rheumatic disorders along with osteoarthritis, rheumatoid arthritis, primary fibrositis and rheumatic fever. Its incidence was appallingly high among soldiers with musculoskeletal incapacities admitted to military general hospitals and special arthritis centers. At such installations psychogenic rheumatism was the most frequent cause of disability (34 per cent) in 450 consecutive cases of soldiers with rheumatic complaints admitted to an Army general hospital in the United States. Diagnosis of psychogenic rheumatism depends on (1) absence of organic disease or insufficient disease to account for the disability, (2) qualitative functional characteristics of the disability and (3) positive diagnosis of psychopathology. The most common symptoms are pain, tenseness, stiffness, limitation of motion, subjective sense of swelling, muscular fatigue and weakness of an involved part. Associated functional manifestations (headaches, dyspepsia, globus hystericus, sighing respirations, precordial pains, insomnia, tremors, cold moist hands and feet, anxiety and nervousness) are present in the majority of cases. In practically all instances evidence of previous neurotic traits may be elicited. The precipitating emotional factors are often difficult to ferret out, but smoldering resentment seems to be the common basic psychopathologic factor in psychogenic rheumatism. In remarks about the terminology the author says that the term psychogenic rheumatism, although objectionable to some, is convenient and compact.

Acta Radiologica, Stockholm

28:417-862 (Nov. 13) 1947. Partial Index

*Estrogens and Tumor Genesis. B. Zondek.—p. 433.

Parametritis as First and Only Symptom of Cervical Carcinoma During Pregnancy. B. Ebenius and A. Sjövall. —p. 493.

Methods to Reduce Dangers of Radiotherapy in Cancer of Uterus. D. Den Hoed.—p. 497.

Carcinoma of Ovary Developing on Basis of Ovarian Endometriosis. M. Rauramo.—p. 638.

Rectal Injuries Following Stockholm Method of Treatment of Cancer of Cervix Uteri. A. Ingelman-Sundberg.—p. 760.

Estrogens and Tumor Genesis.—According to Zondek the question of correlation between the sex hormones and tumor genesis is of utmost clinical and theoretic importance. There exist reports in the literature of benign tumors arising in the genital organs of both women and animals after administration of estrogenic hormone. Carcinogenic effect of estrogen has been reported in rodents and occasionally in monkeys. In the human subject no convincing results could be demonstrated. The fact that estrogen is used for treatment of cancer (prostate, breast) contradicts the carcinogenic action of estrone. He believes that only exceedingly prolonged administration of estrone might cause undesirable results. He advises great caution in the administration of estrogenic hormone in women with cystic mastitis or cervical erosion, as well as in women belonging to cancerous families.

Nordisk Medicin, Gothenburg

36:2307-2366 (Nov. 21) 1947. Partial Index

*Clinical Picture of Tumors of Adrenal Cortex. E. Dahl-Iversen and I. C. Højensgaard. -p. 2307.

Hospitalstidende

Treatment of Migraine by Intravenous Injections of Manganese. T. Dalsgaard-Nielsen. -p. 2315.

Duodecim

Gastroenteritis Epidemic Due to S. Enteridis Var. Danysz (Ratin). U. P. Kokkó. -p. 2325.

Norsk Magasin for Laegevidenskapen

BAL Treatment of Thrombopenic Purpura after Arsphenamine Intoxication. T. Kahrs. -p. 2329.

Hygiea

Fractional Determination in Portioned Lumbar Puncture. Thirty-Five Determinations in 31 Cases of Epilepsy. R. Eeg-Olofsson. -p. 2351.

Sedimentation Reaction and Getting Up in Acute Polyarthritis. L. Brahme. -p. 2355.

Case of Heerfordt's Syndrome in Schaumann's Disease. L. Arin. -p. 2359.

Clinical Picture of Tumors of Adrenal Cortex.—Dahl-Iversen and Højensgaard say that tumors of the adrenal cortex cause sexual hormonal effects, combined sexual and metabolic effects and purely metabolic effects on the organism. Tumors with excess production of androgenic hormones occur in boys and girls before puberty and in women, usually young women. Tumors with combined sexual and metabolic effects are commonest and occur mainly in somewhat younger women. Cortical tumors with purely metabolic changes appear in men and women, more often in women. Hyperplasia and tumors of the adrenal cortex, tumors of the pituitary glands, the pineal glands and the gonads are closely related. Secretion of more than 200 international units of androgen in the urine in twenty-four hours points to a tumor of the adrenal cortex. In differential diagnosis between hypophysis affection and affection of the adrenal cortex the only certain aid is bilateral operative exploration. It is advised in all cases with Cushing's syndrome. Cortical tumors on the left side predominate, and exploration first on this side is in order. Treatment of tumors of the adrenal cortex is operative. Preoperative and postoperative administration of cortical hormones has reduced the operative mortality. The Shipley incision or its modification affords the best access in tumors with known localization. In bilateral exploratory intervention the authors advocate lumbar incision, vertical or diagonal, parallel with the twelfth rib. Two cases of hormone-producing cortical tumors of the adrenals of pure sexual type treated during the past year are described, the one, bilateral, in a woman aged 44, the other, on the right side, in a girl aged 6.

Book Notices

Principles of Occupational Therapy. Edited by Helen S Willard, B.A., O.T.R., Director, Philadelphia School of Occupational Therapy, Philadelphia, and Clare S. Spackman, B.S., M.S. in Ed , O T R., Director, Curative Workshop, Philadelphia School of Occupational Therapy. Cloth Price, $4.50. Pp. 416, with 46 illustrations. J. B Lippincott Co , 227-231 S. 6th St., Philadelphia 5, 1947.

This book reports the work of the authors and nineteen other outstanding leaders who bring together in this volume the principles of occupational therapy. The book points out that principles of occupational therapy have been utilized for centuries in the management of the care of patients. In modern times its value was recognized in World War I, but there was little carryover from the military to civilian hospitals. Great strides were made during World War II, and the importance of its activities in the dynamic program of rehabilitation has made it one of the most talked about subjects in medical service. The development of interest in physical medicine, which includes both occupational and physical therapy, has given further stimulus to training and practice in this field. The authors point out that occupational therapy as a method of treatment can do much to shorten convalescence and improve the degree of recovery. They therefore believe that its methods are destined for broad use in hospitals.

The book is divided into two sections. Section I is entitled "Basic Concepts" and is composed of five chapters. A feature of each chapter which will be appreciated by all who read this book is the boxed-off list of chapter topics. Each topic is capitalized within the chapter, thereby making work with the book especially easy. Section II has fourteen chapters, the larger of which are divided into parts. A good index at the end adds much to the value of this book. In addition to well organized textual material there are numerous blank forms, charts, diagrams and pictures; references to periodicals, books and pamphlets are numerous and appear at the end of each chapter. Doctors, nurses, medical students, social workers and, of course, occupational therapists will want this basic textbook in their libraries because it is interesting and easy to read.

The Story of Hypnotism. By Robert W. Marks. Cloth. Price, $3 Pp. 246. Prentice-Hall, Inc., 70 Fifth Ave., New York 11, 1947.

The revival of hynotism as a means for treating psychologic disorders has stimulated the public's interest in this controversial subject prematurely. However, the author, writing for the public, has succeeded in presenting the outlines of hypnotism understandingly and accurately. He describes the rise of animal magnetism under Mesmer's influence and its decline caused by bias within medical circles. Hypnotism later revived under medical auspices but again declined as a result of its use as a direct attack on symptoms rather than on their pathogenic complexes. The author proceeds from individual hypnotism to describe examples of mass suggestion and to reveal how crowds have been influenced. This social phenomenon is of topical interest and highlights the value of the book for the education of the public.

Nutrition in Health and Disease. By Lenna F. Cooper. B.S., M.A., M.H.E., Chief, Department of Nutrition, Montefiore Hospital, New York, Edith M. Barber, B.S., M.S., and Helen S. Mitchell, A.B., Ph.D., Dean, School of Home Economics, University of Massachusetts, Amherst, Mass. Tenth edition. Cloth. Price, $4. Pp. 729, with 132 illustrations. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1947.

This textbook for nurses and valuable reference book for dietitians and home makers with training in home economics has been rewritten by a group of authorities with a view to offering a valuable and reliable aid in the teaching of nutrition and diet for both sick and well patients. Emphasized is the fact that therapeutic diets are normal diets modified to suit special needs. The use of a basic dietary pattern is recommended in all instances in order to insure the nutritional adequacy of all diets, even those restricted because of special diseases. Because therapeutic diets are valueless unless eaten, the authors call attention to factors which help to induce the patient to eat; they emphasize that the patient is a person and must be treated and fed as such. The style is simple and direct. The book is divided into four sections of approximately equal length which deal with the principles of nutrition, diet in disease, food selection and preparation, and tabular material and special tests. The double column page is used for ease of reading. The material is well organized and especially adapted to the volume's chief purpose—a textbook for student nurses. As a reference for advanced students there is an abundance of valuable and usable tabular material in the fourth section together with references for special reading. The glossary is valuable to the beginner. The table of contents and a good index makes it easy to find special subject matter.

The Incidence of Neurosis Among Factory Workers. By Russell Fraser, with the collaboration of Elizabeth Bunbury and others. Medical Research Council, Industrial Health Research Board, Report No. 90. Paper. Price, 1s. 3d. Pp. 66, with 23 illustrations. His Majesty's Stationery Office, York House, Kingsway, London, W. C. 2, 1947.

In 1942 Dr. Russell Fraser and his English collaborators, believing that neurotic illness was responsible for a considerable amount of absence from war work, undertook a study of the incidence of neurosis among factory workers. In all, 3,083 adult workers were examined in thirteen light or medium engineering factories in which over 30,000 workers were employed. This number examined represents 80 per cent of the original random sample. The other 20 per cent, for one reason or another, could not be examined. The inquiry was concerned with "recent" health and circumstances during a series of periods of six months between September 1942 and December 1944. The data collected provided information about the health of the workers in the engineering trade under stabilized wartime conditions. "Recent" referred to the past six months and "prewar" to the whole of the worker's prewar life. The term as used in the report concerned any psychologic or mental illness (i. e., any disability for which there was apparently a psychologic cause or partial cause, including anxiety states, mild depressive states, obsessional states, hysteria and also a few instances of psychosis which were discovered among the study group). The term does not include original nervous diseases. Minor neuroses were considered as abnormalities of personality unassociated with symptoms. The main results of the inquiry are clear: 10 per cent of the workers studied suffered from definite or disabling neurotic illness; neurosis caused between one fourth and one third of the absence from work due to illness, and certain features in the individual workers or in their environment were associated with a varying incidence of neurosis. Although the sample was probably as representative as practical in such a study, the sampling limitations leave uncertain the extent to which these findings may be generally applicable. However, in these days of underproduction and manpower shortage, industry can hardly afford to neglect the disturbing implications of Dr. Fraser's report.

Practical Psychiatry and Mental Hygiene. By Samuel W. Hartwell, M.D., Assistant Director, Department of Mental Health, State of Michigan, Division of Mental Hygiene and Child Guidance, Lansing, Mich. Cloth. Price, $3.75. Pp. 439. McGraw-Hill Book Co., Inc., 330 W. 42d St., New York 18, 1947.

A man who has taught psychiatry to nurses for twenty years has published this book to accomplish four goals: (1) to help the student develop a dynamic interest in psychiatry; (2) to make psychiatry more easily understood; (3) to make the teaching of psychiatry practical, and (4) to permit flexible use of the test. The book is divided into four parts, namely, the introductions, medical psychology, psychiatry and mental hygiene. The textual matter is clearly written and easily understood. This book is recommended for the use of the student nurse and the psychiatric social service worker.

Mind and Body: Psychosomatic Medicine. By Flanders Dunbar, M.D. Cloth. Price, $3.50. Pp. 263. Random House, Inc., 457 Madison Ave. New York 22, 1947

This book is intended for the lay reader, although the general physician will also find it interesting and profitable to read. The author writes authoritatively as the pioneer of the subject generally termed psychosomatic medicine. The style is simple and nontechnical, sustaining interest throughout. The most frequent questions and doubts of the people are adequately answered by the contents, which include discussions of typical physical disturbances caused by emotional conflicts. The book is highly recommended.

Unipolar Lead Electrocardiography Including Standard Leads, Unipolar Extremity Leads and Multiple Unipolar Precordial Leads. By Emanuel Goldberger, B.S., M.D., Adjunct Physician, Montefiore Hospital, New York. Fabrikoid. Price, $4. Pp. 182, with 88 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1947.

This monograph was expectantly awaited because the author has done much to popularize the recent development of the so-called unipolar limb leads. A review of this book must deal with two aspects: (*a*) the theory of the unipolar leads and its practical application and (*b*) the adequacy of the presentation of the subject by the author. In its early development with the limb leads, electrocardiography recorded the differences in the electrical effects of the heart on the two electrodes which form each limb lead. With the advent of precordial or chest electrocardiography, the difference in the effect on the two electrodes used in such recording was much greater. The difference in effect approached but did not equal the unipolar method obtained by connecting an electrode on the surface of the exposed heart with an "indifferent" electrode at a distance on the body. Wilson therefore endeavored to obtain a true unipolar precordial, or V, electrocardiogram by using the central terminal which he and his group developed. They published a communication dealing with the possibility of getting similar unipolar leads by connecting the central terminal with an electrode on an extremity. The author amplified and simplified this method with his augmented unipolar, or aV, leads. These V or aV leads, if the theory of the Einthoven triangle is applicable to the human body, should give the electrical effects of the heart only on the exploring electrode. The theory of the Einthoven triangle as a theory is correct. But its application in clinical electrocardiography is still disputed. There is no universal agreement that the postulates which would make the central terminal a null electrode are fulfilled, and actual recording of the potential of the central terminal shows that it is not a true null electrode. As far as precordial leads are concerned the error of this assumption is not too great and the central terminal may be considered as good and under certain circumstances a better "indifferent" electrode than an electrode placed on one of the extremities. However, any deviation actually from the Einthoven theory would make the utilization of a central terminal or Goldberger's modification less reliable in obtaining a true unipolar limb lead. That this is so is shown by the fact that while theoretically the algebraic sum of the records obtained with V_L, V_R and V_F, or with aV_L, aV_R and aV_F, should equal zero, and this Goldberger states in his book; actually this is not so in many cases. For example, in figure 64 of this book the sum of QRS of aV_L, aV_R and aV_F is far from zero. It would appear therefore that the strict interpretation that the V or aV limb leads are truly unipolar leads has not been verified. If the reader bears these facts in mind he may properly evaluate the merits of so-called unipolar lead electrocardiography.

When one turns to the presentation as contrasted with the theory of this book, one will be impressed that the material has been somewhat hastily put together and that the development is not as logical or succinct as in Goldberger's original articles. In addition, one finds that the interpretation of the aV limb leads is largely arrived at empirically as far as normality, abnormality and significance is concerned. Thus, the older electrocardiographer will have to learn a new set of criteria for the so-called unipolar limb leads in addition to those he is already familiar with as far as the ordinary limb leads are concerned.

The exposition of the V chest leads is adequately presented, but this material is now well known and would therefore not by itself justify the publication of a new monograph. The author properly stresses the recent developments concerning the influence on the electrocardiogram of the position of the heart. However, it is an error to believe that this is more readily to be obtained by the use of aV limb leads than by ordinary limb leads, as the reader can determine for himself by referring to the excellent studies with ordinary limb leads which Ashman and his colleagues have published.

There are a number of errors of fact, some minor and some more serious, in the book which the author should correct in the next edition. The style is involved and the text is complex, so that it will be difficult for the beginner. Other publications present the theoretical material more succinctly and clearly.

With all its faults this book is recommended for two groups of readers: (*a*) the established electrocardiographer who desires to evaluate critically this newer development in "unipolar electrocardiography" and (*b*) the beginner in electrocardiography who may find that, despite the fallacies of theory, he obtains a rational analysis of electrocardiography which makes him appreciate the theory and thus makes it easier for him to apply this tool clinically. Both types of readers must be cautioned, however, to avoid the snare that this is an accurate development of the theory. They should recognize that actually the application of theory is a crude approximation of the truth. It cannot be denied that the unipolar limb leads as recorded in this book may turn out to be of value in certain restricted cases, as, for example, in the diagnosis of hypertrophy of the right heart and in the evaluation of Q_3. It is difficult to believe, however, that the so-called unipolar extremity leads will replace the ordinary limb leads. In fact, it would be a great mistake to believe that they add much to one's practical information when one routinely takes precordial leads from at least three chest positions in addition to the ordinary limb leads.

A Study of Individual Children's Diets. By E. M. Widdowson. Medical Research Council, Special Report Series, No. 257. Boards. Price, 6s. Pp. 196, with 93 illustrations. His Majesty's Stationery Office, York House, Kingsway, London, W. C. 2, 1947.

This study comprises observations made on 1,000 children, aged 1 to 18 years, between 1936 to 1939. Dr. Widdowson is well qualified from her previous chemical and analytic studies, which date back to 1925. The study presents many interesting facts, and one is impressed with their careful and thorough analysis. Among the most striking revelations were the rather wide variations in caloric intake which were compatible with good health and average physical development. To the American reader the chapter on "beverages" is of interest. She notes that the "small beer" which for centuries was the customary drink of children has been replaced by tea and also to some extent by milk, the average amount of milk being less than a pint a day. This book will be valuable and instructive for any one interested in nutrition and development in childhood.

Communicable Diseases. By Franklin H. Top, A.B., M.D., M.P.H., Medical Director, Herman Kiefer Hospital, Detroit, and collaborators. Second edition. Cloth. Price, $8.50. Pp. 992, with 108 illustrations. The C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1947.

This is the third edition of a deservedly popular work. The author has added to the volume from authoritative sources on coccidioidomycosis, rheumatic fever, epidemic diarrhea and the like so that the book approaches somewhat a textbook of medicine. Although what is said is worth while, it is a question whether too much or not enough has been said and whether the material may not be too much for such a volume. It gives a sparse report on clinical problems which are not considered completely enough. The detail has been carefully worked out and presented, and the author shows an obvious knowledge of up-to-date literature.

Suggestive Therapeutics: A Treatise on the Nature and Uses of Hypnotism. By H. Bernheim, M.D. Translated from the second French edition by Christian A. Herter, M.D. [Originally published in 1889.] Cloth. Price, $5. Pp. 420, with illustrations. London Book Co., 30-41 50th St., Woodside, Queens, New York, 1947.

This reprint of Herter's translation of the classic work on hypnotism is timely because of the revived interest in hypnotism as a therapeutic procedure. Many of the recently discovered phenomena can be read in this original work, indicating that little progress has been made in the field. All who use or contemplate using hypnotism should have this classic work in their library for reference.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

DEATH IN THE BASSINET

To the Editor:—In the February 1948 *Woman's Home Companion* there appears an article, anonymously written, entitled "Death in the Bassinet." In substance the article is an indictment of the medical profession for advising parents to place infant babies in the prone position when sleeping. What is current medical opinion regarding this practice?

M.D., Cobleskill, N.Y.

ANSWER.—The anonymous author reported the sudden death of his 10 month old son. The father feels convinced that the death was due to the fact that the child was placed in his crib in the prone position. One day, when the mother made her bimonthly visit to the pediatrician, it was noted that the friction of the bedding had caused an irritation on the back of the baby's head, so the doctor advised putting the baby face downward during his nap. The mother, acting on the advice of the physician, put the baby in the bassinet in the prone position. The baby was heard to cry, vomited a part of his previous meal and when the parents reached the baby in his bed he had expired.

Evidence is insufficient to prove that the prone position of itself was the cause of sudden death. Most pediatricians have seen many young infants who select by preference the face down position without unfavorable results; though it is granted that many mothers fear this position for their sleeping infants. Pillows should not be permitted either in the bassinet or in the carriage. The mattress should be firm, flat and smooth, so that the baby cannot push his face into a depression. The mattress in the carriage should fit well without space around the edge in which the baby may become wedged. There are many causes for sudden death in infants, most of which can be revealed only by a carefully conducted necropsy.

The formerly accepted diagnosis of thymic death is no longer accepted as meaningful, and most pathologists and clinicians reject this explanation as obsolete. There are some cases on record in which an infant has buried his face in a soft pillow and shut off his supply of air. Not infrequently, cases are reported to the coroner, of babies who have become accidentally strangulated in their beds or carriages with bands of clothing, blankets and restraining garments which have become wound around their necks. Other occasional causes of sudden death are briefly mentioned, such as an acute bronchopneumonia. Spontaneous hemorrhages into the lungs or peritoneal cavity occasionally occur; apoplexy of both adrenal glands has been reported and hyperacute attacks of fever such as meningococcus infections. Some have sought to explain sudden death as the result of an anaphylactic shock. Others have suggested the cause to be laryngospasm of tetany, though symptoms of tetany were not found before the fatal attack. One author thought the fatality was caused by hypoglycemia due to adrenal insufficiency.

One of the common causes of sudden death in young infants is respiratory obstruction from aspirated particles of food or mucus. The obstruction happens when vomiting of stomach contents is associated with crying. Food is thereby drawn into the air passages. Most of these accidents have been observed in infants less than 6 months of age. On necropsy one finds that either a large curd of milk has obstructed the larynx or in other instances there is food (usually milk or cereal) or mucus in the respiratory tract. In some cases infants have been suffocated by aspirating a dusting powder such as stearate of zinc from a container with which the baby was playing. In the London *Lancet*, Feb. 28, 1948, appeared an analysis of recent cases (1945 to 1947) coming under the jurisdiction of the Leeds Coroner's Court: 21 infants aged 9 months or less died suddenly due to aspiration of vomited food stuffs. It is probable that another 10 infants in whom the cause of asphyxia was not ascertained or was reported to be due to some other factor also died as the result of aspiration of regurgitated food substances. Soft feather pillows were held to be responsible for 2 deaths and probably responsible for 4 others. In 1 case suffocation by a shawl was believed responsible for a sudden death.

URINARY COLLOIDS

To the Editor:—Please give references and discuss influence of urinary colloids as related to the formation of stones in the urinary system. Are there satisfactory means of qualitative or quantitative determination of colloids in the urine?

Arthur J. Butt, M.D., Pensacola, Fla.

ANSWER.—The term "urinary colloids" suggests that the inquirer is thinking in terms of specific substances rather than in terms of the state in which some of the urinary constituents may exist. One should speak in terms of the "colloidal state" of substances. Conceivably inorganic substances such as phosphates of calcium and other substances may be held in part in the colloidal state in a fluid like urine. The organic substances which would most likely be involved in bringing about this colloidal state of such inorganic constituents are proteins. A standard quantitative method for determining colloids in urine is not available, but the quantitative estimation of total proteins, calcium phosphates and oxalates might throw some light on the factors which contribute to the colloidal state, which might easily be involved in the formation of stones in the urinary system. In some cases the suspended material in the urine may consist of tissue debris, and this might also be a contributing factor to the formation of calculi. If such cellular debris exists in urine it could, of course, be separated by centrifugation and be identified by appropriate microscopic examination.

CYSTIC OVARIES

To the Editor:—1. (*a*) Is it advisable to leave healthy ovaries after hysterectomies in women before menopause? (*b*) How great is the danger of future development of cystic ovaries? (*c*) Are not the natural hormones secreted by the remaining ovaries better than the substitution therapy of the artificial menopause? 2. A great number of obstetricians claim that low flap cesarean section does not have advantages over classic cesareans. Discuss the types of cesarean section, the intraperitoneal and the extraperitoneal.

M.D., Pennsylvania.

ANSWER.—1. (*a*) Considerable discussion is still taking place on the advisability of leaving healthy ovaries after hysterectomy in women before the menopause. Some prominent gynecologists recommend that ovaries be left after the menopause. Reasons for removing the ovaries are that in a fair number of women there subsequently develop cysts which necessitate another major operation; fair evidence exists that many women near the climacteric go through the menopause within a few years following hysterectomy. One experienced surgeon now leaves the ovaries in women under the age of 40 but removes them in patients 40 years or over. Assuming that the ovaries are normal and other reasons for removal do not exist, recent observations indicate that removal of ovaries may decrease the hazard of cancer of the breast. Therefore women with a family history of frequent cancer should have the added protection of bilateral oophorectomy, especially older women.

(*b*) The incidence of cystic ovaries requiring surgical removal following hysterectomy is obscure. Estimates vary from 5 to 20 per cent depending on the surgical technic.

(*c*) Hormones secreted by a normal ovary are probably better than artificial therapy, but one must remember that a cystic ovary may or may not function abnormally. All women face menopause inevitably unless they die prematurely. Serious catastrophe associated with menopause does not occur when the patient is properly prepared for it and appropriate management is arranged and followed.

2. Obstetricians differ on transperitoneal or intraperitoneal cesarean sections. Generally obstetricians who have thoroughly investigated the virtues of the classic and the low flap cesarean section favor the latter. The most likely exception to the latter procedure would be in placenta previa, particularly when the placenta is on the anterior wall. Many now perform the low flap type. Surgeons should not attempt cesarean sections, classic or otherwise, unless able to do both types. Inquirer is referred to Stander, "Textbook of Obstetrics," and DeLee-Greenhill, "Principles and Practice of Obstetrics."

LEITZ COLORIMETER

To the Editor:—What is the value of the Leitz photoelectric colorimeter? Is it sufficiently reliable to use in the determinations of blood sugar and blood urea and for other laboratory procedures requiring the use of a colorimeter? Are the methods outlined in the handbook which accompanies the colorimeter acceptable, reliable methods? If this colorimeter is not accurate, are there any on the market which are?

M.D., Minnesota.

Answer.—The Leitz clinical photoelectric colorimeter is suitable for many clinical laboratory determinations that depend on the measurement of the depth of color or turbidity of a prepared test solution.

The laboratory procedures outlined in the handbook which accompanies this colorimeter are standard methods adapted for use with the apparatus. Accuracy is well within the limits required for clinical test purposes. The colorimeter may be purchased precalibrated for use.

The use of this instrument or any other colorimeter presumes a knowledge of standard technics and manipulation in the preparation of test materials and reagents.

ARTERIAL INJECTION

To the Editor:—In cases of extreme shock intracardiac injections of "adrenalin" (epinephrine) have been used. Recently this practice has been criticized as being fraught with danger. Please comment on use of epinephrine injected into the common carotid.

D. C. Wilkinson, M.D., Oconomowoc, Wis.

Answer.—A number of drugs have been injected into the arteries of man. Drugs which ordinarily produce arteriolar relaxation, such as papaverine, histamine and acetylbeta-methylcholine chloride, cause rather pronounced improvement in the circulation. It is probable that a significant amount of epinephrine hydrochloride injected intra-arterially will cause sharp and sustained arteriolar constriction which will jeopardize the integrity of the arterial circulation to the brain in a serious way. Certainly epinephrine hydrochloride should not be injected into the carotid artery of man until appropriate studies on animals have been made.

AXILLARY MAMMARY TISSUE

To the Editor:—A woman aged 32 was first seen by me one year ago for pain in both axillas. Over a period of several months the pain in the right axilla totally subsided while that in left persisted. Apparently the pain in the left axilla was cyclic, being more disturbing to the patient at the time of her menstrual period. History indicated that she received 1 mg. diethylstilbestrol daily and daily doses of progesterone 5 mg. in the latter half of her menstrual cycle over a period of six months. The above medications were interrupted during menstruation. When first examined, the patient's skin appeared slightly coarse and her breasts were increased in size. No masses were palpable in the axillas. With total discontinuation of the foregoing medicaments, her complexion reverted to its normal texture and the breasts to their normal size. The pain in her right axilla was the last to disappear, while the pain in the left axilla appeared aggravated with menstruation. For the past few months at menstrual time small lymph node-like areas can be palpated in both axillas. These disappear in the intermenstrual period, but recur at menstruation, when the left axilla becomes tender to palpation. Although these "nodes" have not increased in size since first observed several months ago, the patient is especially concerned about their potentially becoming malignant. What is the etiology of this condition? Is diethylstilbestrol a factor or coincidental? What treatment is recommended?

M.D., Michigan.

Answer.—It is not clear from the query why this patient 32 years of age with normal menstrual cycles was receiving fairly large doses of diethylstilbestrol and of progesterone or whether this was proper treatment. Presumably, these were given for breast pain occurring at time of menstruation but obviously they aggravated the condition.

Probably this patient has masses of mammary tissue in each axilla, a condition often observed for the first time in patients while lactating. The pain noted in each axilla during menstruation is probably due to the cyclic hypertrophy of this mammary tissue aggravated by the medication. These "lumps" are no more likely to become cancerous than any other mammary tissue, unless it is true that overstimulation from diethylstilbestrol leads to cancer.

For treatment, it is suggested that the medication described be considered inappropriate for a woman of this age, particularly in view of the reaction, and therefore be discontinued. Small doses of testicular extract could be substituted for reasonably short periods of time, if necessary and indicated because of pain and swelling; warm wet compresses are helpful.

SKIN GRAFTS

To the Editor:—Please give information and references concerning use of split thickness grafts around colostomies that are causing irritation to the surrounding skin.

Arch J. Beatty, M.D., Longview, Wash.

ANSWER.—In 1941 L. R. Dragstedt, G. M. Dack and J. B. Kirsner (Chronic Ulcerative Colitis, Summary of Evidence Implicating Bacterium Necrophorum as an Etiologic Agent, Ann. Surg. 114:653-661, 1941) described a skin-covered ileostomy as a method of preventing excoriation of the abdominal wall in patients requiring ileostomy for chronic ulcerative colitis or other diseases of the colon. This method has been subsequently used in a number of clinics and found to be satisfactory for this purpose. The method is applicable to a colostomy and may be indicated when the discharges cause severe irritation of the skin. Usually, however, cutaneous irritation can be prevented after a colostomy by adjustment of the diet together with a well fitting colostomy bag.

LEUKEMIA

To the Editor:—Is folic acid of value in the hemorrhages of acute leukemia? Has it any influence on the course of the disease? Will it help the anemia which accompanies acute leukemia?

R. P. Little, M.D., Dwight, Ontario, Canada.

ANSWER.—Folic Acid has been used in several cases of acute leukemia without apparent effect (Doan, C.A., *Am. J.M. Sc.* 212: 257, 1946; Zuelzer, W. W.: *J.A.M.A.* 131:7, 1946). This is to be expected, as folic acid has been found to be effective only in the macrocytic anemias associated with a megaloblastic bone marrow.

PARINAUD'S SYNDROME

To the Editor:—I have recently observed several cases of severe febrile conjuctivitis. The conjunctival bulb is free. The conjunctiva shows large granules on the lower lid only. There is a moderate discharge of liquid pus. The lower lid and its surroundings are edematous. The temperature is about 104 F., but the patients (mostly small children) do not appear sick or have photophobia. In 1 case there was painful enlargement of a preauricular node. Complete cure occurred with sulfonamide drugs and penicillin within three or four days. Other observations to explain the fever are absent.

M.D., Springfield, Mass.

ANSWER.—What is described is probably a Parinaud's syndrome. This is not a disease entity, since many organisms have been reported as the cause of the condition. It is usually a unilateral conjunctivitis associated with an enlarged preauricular node and with mild to high temperatures. Since it is infectious, the second eye may become involved. In this country localized infection with generalized tularemia is not infrequently seen. The course is usually prolonged, but perhaps the sulfonamide drugs and antibiotics may have shortened the course. Leptothrix, streptothrix and tuberculosis have been mentioned as the etiologic factors in cases of Parinaud's conjunctivitis. This, of course may have been only an unusually virulent infection with a pyogenic organism with involvement of the preauricular nodes.

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MEDICAL PATENTS

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Washington, D. C.

Scientific investigators working in university and professional school laboratories are concerned primarily with the formulation of new ideas and the understanding of nature and its laws. The discovery and development of patentable inventions are seldom conscious objectives of their research efforts. They feel with Sir Henry Dale that "the primary and special function of research in the universities is to build the main fabric of knowledge by free and untrammelled inquiry and to be concerned with the practical uses of it only as these arise in the course of a natural development."[1]

Nevertheless, many of these new ideas and discoveries, the result of experiments undertaken with quite a different purpose, may have valuable commercial application or require protection and control in the public interest. Not only may these new ideas and discoveries contribute to scientific and technologic progress and to cultural and social advancement, but they may also be basic to industrial development and expansion. The protection and control provided under the patent laws may have to be invoked to obtain the greatest public benefit and usefulness from these products of scientific research.

Interest in science and scientific research, particularly in the natural sciences and in their application to engineering and medicine, was intensified and accelerated by experiences during the war. However, war is destructive and costly in scientific progress as well as in human life. During a war research projects are largely developmental in nature, designed to meet immediate and urgent needs. The normal course of scientific investigation is interrupted. Research workers are drawn from the laboratory; some never to return. The continuity of research in many fields is broken.

Scientists, industrial leaders and government officials are all concerned over the extent to which our storehouse of fundamental scientific information was depleted during the war and the need for promptly restocking the shelves. Social and national security public and private health and economic prosperity and well-being depend on the constant extension of scientific knowledge and the effective application of that knowledge.

Now that the military emergency is over, science has an opportunity to return to its normal course of free and unregimented research. The pressure of meeting deadlines and achieving urgent developmental objectives is lifted. Research workers and scientific investigators from the university campus and the industrial laboratory aided materially in the magnificent record our nation made in war production and military achievement. Returned now to the campus and the laboratory on release from wartime responsibilities and occupations, they are more research minded than ever. Interest in research is being given further impetus by government and industry, which are turning to universities, professional schools and technologic institutes for assistance in their postwar reconversion programs.

The situation is made more acute by the critical shortage of scientific and technical personnel and the need for developing a new crop, grounded in fundamentals and trained in research procedures. This new supply of qualified scientists to meet the needs of the future as well as of the immediate present must come from the universities and professional schools. At the same time these institutions are expected to continue as centers of basic and fundamental research. During the past several years, largely for war purposes and the national security, we have been using up our storehouse of fundamental knowledge faster than we have been adding to it.

American science faces a challenging future. Whether we are to enter on a rich era of productive research, profiting from our wartime experiences and capitalizing on the present research consciousness among scientists and the public generally, will depend to a large extent on the philosophy behind our university research programs and the administration of those programs. Of direct concern to university administrators and scientists engaged in the formulation and conduct of research programs is the policy or procedure to be followed in handling the results of scientific investigation.

The public welfare, educational objectives, direction of scientific thought and advance of knowledge are all involved. If science is to be mobilized for peacetime purposes as effectively as it was for war and we are to enter on a rich era of productive research, sound policies and procedures must be developed.

As a service to American higher education and to the scientific fraternity, the National Research Council has been making a comprehensive study of this problem. As a first step, a factual survey[2] is being made of the prevailing policies, practices and procedures in educational institutions and nonprofit organizations for the administration of patentable results of scientific research, with a view to the early publication of the findings for the information and guidance of all concerned. Through correspondence, conversations and visits to university and other research centers, information has been assembled concerning existing practices and pres-

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From the National Research Council.

[1] Dale, H.: Academic and Industrial Research in the Field of Therapeutics, Science 77:525 (June 2) 1933.

[2] Palmer, A. M.: University Patent Policies, Association Am. Colleges Bull. 33:167 (March) 1947.

ent thinking in administrative and scientific circles, about research policies and patent management programs.

ATTITUDE TOWARD MEDICAL PATENTS

An important—and controversial—aspect of the patent problem in universities and medical schools is concerned with what to do with the patentable products of scientific research that affect public and individual health, particularly discoveries and inventions of a medical, pharmaceutic, therapeutic or hygienic nature. Research scientists, physicians, university administrators, government officials, patent attorneys and industrialists have all given considerable thought to this problem and its relation to the public welfare.

Whether patents on medicinal discoveries and foods are in the public interest was the basis of a joint symposium presented before the Division of Medicinal Chemistry, Biological Chemistry, and Agricultural and Food Chemistry of the American Chemical Society in 1937.[3] The American Medical Association held a conference on medical patents in 1939.[4] Various other groups have given consideration to the subject through the years, and the National Research Council has on several occasions held conferences on patent problems at which medical discoveries have been an important item.

Those universities that have comprehensive patent policies usually include within the scope of general over-all policies discoveries, processes, developments and inventions which may affect individual or public health. A few provide specifically for a different treatment of medical discoveries, designed to discourage patenting except when it is considered necessary in the public interest and then without consideration of profit, either to the individual or to the institution. A considerable number have no fixed policy; when cases arise, they handle each one individually, usually without following any uniform pattern except, as a general rule, to discourage investigators from seeking patents.[5]

The prevailing practices of educational institutions, especially those with medical faculties, are influenced to a considerable extent by the traditional attitude of the medical profession as to the ethics of patenting medicinals and medical appliances. Such an attitude, however, does not necessarily preclude patenting a new process or discovery in the public interest. Yet many scientists working in this field take the position that the results of their research, both patentable and otherwise, should be shared "without fee or stipulation." In so doing they often fail to differentiate between patenting for personal gain and patenting in the public interest.

The principles of medical ethics, enunciated by the American Medical Association, say plainly:

> *It is unprofessional to receive remuneration from patents or copyrights on surgical instruments, appliances, medicines, foods, methods or procedures. It is equally unprofessional by ownership or control of patents or copyrights either to retard or to inhibit research or to restrict the benefit to patients or to the public to be derived therefrom.*[6]

Nevertheless, the American Medical Association, by action of its House of Delegates in June, 1914, has given permission to the Board of Trustees of the Association "to accept, at their discretion, patents for medical and surgical instruments and appliances and to keep these patents as trustees for the benefit of the profession and the public, provided that neither the American Medical Association nor the patentee shall receive remuneration from these patents."[7]

The view has been expressed by some scientific investigators that no patents should be taken out for discoveries or inventions in the medical field which may affect individual or public health and that the control should be left to legislative action. This aversion toward the patenting of medical discoveries is well illustrated by the following statement:

> It should not be necessary . . . to invoke the ethical considerations which seem to many of us to be incompatible with the patenting of principles or methods involved in the maintenance of individual or public health. It seems to us probable that no code of ethics has ever developed from purely abstract considerations, and that in every case where a strong feeling of propriety of action has been transformed into a tradition of behavior, there has been behind it some tangible purpose. Standards of behavior which have developed in all things connected with medicine have sprung from a recognition that there is a sharp line of differentiation between those forms of activity which deal with health and those which are purely commercial. The invention of an improvement in the mechanism of automobiles, or of a shoe-buckle, concerns matters of convenience or luxury, and can be dispensed with easily by those who are forced to do without them. The relief of the sick and the prevention of unnecessary sorrow by the maintenance of individual and public health are matters in a different category. As soon as we are in possession of the knowledge of principles or methods which can contribute to these purposes their free utilization becomes a public necessity; and any procedure which inhibits their most rapid and effective application to the needs of the community would seem to us as unjustified as the cornering of the wheat market or the patenting of the process of making bread.[8]

Through the centuries medicine has given freely of its discoveries for the benefit of mankind, and they have become the property of all who cared to employ them in the control of disease. However, as medicine has become more complex, involving specialized investigation in the fields of biochemistry, physiology, physics and associated branches, great numbers of fulltime research scientists in the hospital and the laboratory work with members of the medical profession but are not bound by the same ethical principles.

Many important medical preparations and technics have been developed in university laboratories, often at considerable expense to the institutions. It will be recalled that it was in the laboratories of the University of Toronto that the possibilities of insulin as a treatment for diabetes were discovered in 1921 by a team of biochemists, physiologists and a practicing physician. It was at Columbia University that a member of the pathology department discovered the antirachitic properties of vitamin D. The use of the ultraviolet ray to enrich the vitamin D content of foods and medicinal products was developed by a biochemist at the University of Wisconsin. It was also a biochemist, working in the laboratories of St. Louis University, who discovered the therapeutic properties of estrone ("theelin"). Similarly, iodobismuthite ("iodobismitol") was developed at Stanford University and thyroxin at the University of Minnesota.

Patenting such discoveries is not considered to be wrong in itself, but to be desirable in order to control them in the public interest. An editorial on "Patenting

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[3] Russell, H. L.: Are Patents on Medicinal Discoveries and on Foods in the Public Interest? Indust. & Engin. Chem. 29:1315 (Nov.) 1937.

[4] Booth, A. W.: Report of the Conference on Medical Patents, Held Under the Auspices of the Board of Trustees of the American Medical Association, March 16, 1939; Supplementary Report, J. A. M. A. 112:2163 (May 27) 1939.

[5] Palmer, A. M.: Patents and University Research, Scient. Monthly, 66:153 (Feb.) 1948.

[6] Principles of Medical Ethics, Chicago American Medical Association, 1937, chap. 3, article 1, sect. 5.

[7] Fishbein, M.: Medical Patents, Indust. & Engin. Chem. (Indust Ed.) 29:1315 (Nov.) 1937.

[8] Zinsser, H.: Problems of the Bacteriologist in His Relations to Medicine and the Public Health, J. Bact. 13:147 (March) 1927.

Therapeutic Agents," which appeared in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in 1919, contains the following pertinent remarks[9]:

> . . . there are occasions when it is wise, if not necessary, to obtain a patent in the interest of the public and, in the case of surgical instruments and medicines, of the medical profession. In certain instances it is absolutely necessary that the article produced shall maintain a definite standard of quality and purity—and, it may be added, shall be sold at a reasonable price. Enterprising pharmaceutical manufacturers have usually been ready to appropriate the results of scientific research by investigators or therapeutic measures suggested by practising physicians. Not infrequently, in such instances, the desire for financial gain has caused the marketing of such products with extravagant, if not false, claims as to their value. Yet the patent laws may be used so as to protect and to benefit the public and the medical profession. In research laboratories, work is being carried on resulting in the production of new therapeutic agents. It is important that these agents shall be so controlled that they may be made available without subordination to commercial interests. It has become practically necessary, therefore, for research workers to protect their products in the interest of the public welfare and scientific medicine. It has not been an easy matter to decide how best to bring about the desired results.

In a report on "The Protection by Patents of Scientific Discoveries," made in 1934, a committee of the American Association for the Advancement of Science summarized the situation as follows[10]:

> The committee recognizes the fact that there exists in many quarters a strong feeling against medical patents. This feeling seems to be largely due to the unpleasant memories of the past exploitation of the public by means of "patent medicines" which had doubtful or decidedly harmful effects on the public health. Government regulation during recent years has eliminated a great deal of misrepresentation and false claims in regard to this class of goods. The Patent Office, moreover, now seldom issues patents for the old-fashioned type of patent medicines. It is therefore an error to class all medical patents with the former types of "patent medicines."
>
> The mere fact that medical patents offer the means of making profit is not a sufficient reason to condemn them entirely . . . patents have other very important uses. Moreover, we must bear in mind that it is possible to obtain profits from medical discoveries in many other ways without resorting to patents if the medical investigator is so inclined. We must, after all, depend upon the integrity and character of the investigator when important medical discoveries are involved.
>
> The ideal to strive for may perhaps be that no medical discoveries should be subject to any restrictions whatsoever In our present commercial economic system, however, and with existing laws and business practises such an ideal is difficult to attain, since not all may live up to it. We must, therefore, guide ourselves in accordance with the economic situation that exists today and seek to attain our ideals through the existing economic machinery rather than to ignore it entirely on the ground of ethical consideration alone.
>
> The act of securing patents for medical discoveries is not unethical in itself, and such act does not necessarily mean that personal profits are sought. Under our existing laws and commercial practises dedication to the public of important medical discoveries by mere publication is not always the best procedure to follow. The public can often be best served by receiving the benefits of a new medical discovery under the control of a patent. . . . Through making a medical discovery it may become the duty of the investigator to make sure by means of patents that the public will actually benefit from his discovery and not be subjected to unfair exploitation by others who may commercialize his discovery.

The committee suggested further that, although in general the ethics of the medical profession may properly prohibit its members and their close associates from obtaining any monetary profits through medical patents, the following possible conditions may sometimes demand recognition.[10]

> (*a*) Where in introducing the medical invention commercial large scale operation is necessary involving expensive equipment and large personnel. In such case the manufacturer must be assured by means of patents that he will not meet with ruinous competition and thereby lose his initial investment in an enterprise for producing a new medical product or apparatus. Before placing a new product on the market a great deal of preliminary work, expensive equipment and salesmanship are necessary, requiring a considerable outlay of capital. No manufacturer would be willing to go to this expense unless he knew that he could obtain an adequate return on this investment through patent protection.
>
> (*b*) Where the expenses incurred in developing the invention were unusually large and the funds were supplied by individual investigators or organizations without the assistance of any public funds. In such cases there is a legitimate reason for recouping the expenses involved in the research. The public should certainly be willing to pay the actual cost for what it gets.
>
> (*c*) Where a medical invention has been made at a university or similar institution having limited funds for research there may be some justifications in such case for obtaining funds by means of patents for further research of the type which will ultimately inure to the public welfare

In order to obtain a comprehensive picture of the present situation in educational institutions with regard to the handling of patents in this field, a special study[11] was made of the practices of the seventy medical schools on the approved list of the Council on Medical Education and Hospitals of the American Medical Association and of the relation of those practices to the general situation in the universities and colleges with which sixty of those schools are affiliated. It was found that: (1) nine of the university-affiliated medical schools have special policies for dealing with medical patents, several of which are applicable on a university-wide basis; (2) nine others conform to formalized general university policies for handling all types of patentable results of scientific research; (3) the other forty-two have no formal or established policy, either in the medical school or in the university at large, although many of the medical schools follow practices which are generally accepted throughout the universities with which they are affiliated; (4) only two of the ten independent medical colleges have clearly defined policies; the other eight either follow informal policies or have no policy at all.

The complexity of the problem and the wide variation of procedure in handling medical discoveries are clearly indicated in the following resumé of prevailing practices in the sixty approved university medical schools and ten independent medical colleges.

SPECIAL PATENT POLICIES

On recommendation of the Faculties of Arts and Sciences, Medicine, Public Health, and Engineering of Harvard University, the following policy[12] in regard to patents on discoveries or inventions bearing on health and therapeutics has been adopted by the President and Fellows of the University, as a university and not merely a medical school policy, dealing with the subject matter of the research rather than the site of its performance:

> No patents primarily concerned with therapeutics or public health may be taken out by any member of the University, except with the consent of the President and Fellows; nor will

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[9] Patenting Therapeutic Agents, Current Comment, 73:1219 (Nov. 16) 1919.

[10] The Protection by Patents of Scientific Discoveries, report of the Committee on Patents, Copyrights and Trademarks, American Association for the Advancement of Science. (Jan.) 1934, p. 20.

[11] Included as part of a comprehensive survey of university patent policies conducted by the National Research Council, the findings of which will be published by the Council early in 1948 in a detailed report including in an appendix the complete texts of thirty-seven definitive university patent policies

[12] A Statement of Policy in Regard to Patents on Discoveries or Inventions Bearing on Health and Therapeutics, Nov. 15, 1939.

such patents be taken out by the University itself except for dedication to the public. The President and Fellows will provide legal advice to any member of the University who desires steps to be taken to prevent the patenting by others of such discoveries or inventions.

In cases as to which it may be deemed necessary to take out a patent and dedicate it to the public in order to prevent others from obtaining a patent for their own benefit, members of the University are asked to report to the dean of the appropriate faculty any such discovery or invention made by them, with a recommendation as to whether an application for patent should be filed, in order that, if necessary, steps may be taken to obtain and dedicate the patent.

A person making any discovery or invention which he thinks should be patented for any other reason should so report to the dean of the Medical School, giving his reasons in full, for submission to the President and Fellows of the University.

Under the By-Laws and Regulations of the Yale Corporation, it is the policy[13] of Yale University that neither the University nor members of any of its faculties should make profits from inventions or discoveries made at the University, or in connection with its activities, and especially from inventions or discoveries which may affect the health or welfare of individuals or of the public. In 1935 the Board of Permanent Officers of the Yale University School of Medicine adopted the following resolution, based on the premise that the patenting of discoveries applicable in the fields of public health and medicine was becoming an increasingly important and controversial problem of wide implication for the public:

> . . . it is, in general, undesirable and contrary to the best interests of medicine and the public to patent any discovery or invention applicable in the fields of public health or medicine; but if, at any time, any member of the faculty deems it necessary solely for the protection of the public, without profit to himself or the University, to control any invention or discovery by means of a patent, he shall bring the matter before the Prudential Committee for consideration before taking any steps toward patenting.[14]

The Prudential Committee of the Corporation is authorized to deal with each case according to its merits. Although no patent has been applied for by any member of the faculty of the School of Medicine during the last twenty-five years, it is the view of the faculty that this should be the basic policy of a school of medicine with respect to inventions or discoveries which affect the health of individuals, with a view to the protection of the public interest. It would be permissible however, under the regulations of the Yale Corporation, to seek a patent if it seemed necessary in the public interest, for the advancement of learning or to maintain the quality of a patentable discovery. Under these circumstances, the probability is that a royalty-free license would be granted to selected manufacturers who could be counted on to maintain proper standards and price.

St. Louis University has generally followed a hands-off policy with regard to patents resulting from scientific research in its several schools, but a special trustee committee has had under consideration for several years the formulation of a formal patent policy for the University. However, in the School of Medicine it has been the recognized practice since 1930 for members of the faculty and research workers to assign voluntarily, without consideration of individual benefit, their patent rights to discoveries in fields in any way related to medicine and public health to a Committee on Grants for Research created in the School of Medicine for the express purpose of administering patents. This committee was established originally to administer the patent on estrone ("theelin") which was assigned by Dr. Edward A. Doisy and his co-workers to St. Louis University for the benefit of the School of Medicine, the eventual income from the licensing of the patent to be used exclusively for the prosecution of research in the School.[15] The procedure followed in the licensing of this patent has served as the basis for the administration of other patents handled by the committee. As in the case of "theelin," the agreements with all licensees provide that "for the purpose of insuring more adequate public service and of fostering further scientific research through the product, the University desires to control the preparation and marketing of the product through its testing laboratory, thereby assuring a distribution for therapeutic purposes of preparations of dependable and uniform character."

While Johns Hopkins University also officially pursues a hands-off policy on patents resulting from scientific research in its various schools, the attitude of the faculties of the School of Medicine and the School of Hygiene and Public Health is definitely averse to the patenting of any inventions or discoveries which may affect the public health. That attitude is expressed in the following resolution, which was adopted by the Advisory Board of the Medical Faculty in 1933[16]:

> The Advisory Board of the Medical Faculty considers it undesirable for any member of the Faculty or anyone connected with the School of Medicine to patent any invention or discovery which may affect the public health; but, in case any member thinks it desirable to secure a patent, he should bring the matter before the Advisory Board before so doing.

At the University of Cincinnati it is the policy with respect to inventions, discoveries and developments relating to medicine, therapeutics and hygiene:

> . . . to discourage the acquisition of patents by faculty members, students or other persons connected with the teaching and research staffs or by any agency of the University, except when the control provided by patent rights appears to be necessary or desirable in relation to the public welfare. Therefore, it is strongly recommended that patentable inventions and discoveries of this type as well as investigative work that is clearly pointed toward such patentable inventions or discoveries, be brought to the attention of the dean of the faculty to which the inventor belongs, and by the dean reported to the administrative authorities of the University, to the end that action, in keeping with the rights and wishes of the inventor and appropriate to the public responsibilities of the University, may be agreed upon. It is understood that such consultation of the inventor with University authorities shall be voluntary in the absence of prior agreement to the contrary, and that the right of the inventor to his invention shall not be prejudiced thereby.[17]

The College of Medicine at the University is guided by this policy and, with a view to discouraging the acquisition of patents, the medical college committee has in at least one instance recommended, after a careful study, that the individual drop his plans to obtain a patent. In general, the right of absolute ownership by a faculty member or student or other person connected with the teaching and research staffs of the University, of his own inventions or discoveries, whether or not made while using the regular facilities of the University, and the right of such persons to apply for, hold and dispose of patents are recognized as indefeasible. Exception is made in the event that the invention or discovery was made as a direct result of a specific research project sponsored and financed by the University or by the University of Cincinnati Research Foundation or by other agencies outside of the University, under a contract with the person concerned, specifying the abrogation of those rights as to that specific project. The facilities of the Research Foundation are available, both to the University and to the individual inventor, for the management of any patents that are taken out.

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[13] By-Laws and Regulations, Yale Corporation.

[14] Minutes of the Board of Permanent Officers of the School of Medicine, Yale University, New Haven, March 25, 1935.

[15] Bulletin of St. Louis University, School of Medicine, July, 1931.

[16] Minutes of the Advisory Board of the Medical Faculty, Johns Hopkins University, Baltimore, 1933.

[17] By-Laws and Regulations of the Board of Directors, University of Cincinnati, pp. 30-32.

The College of Physicians and Surgeons at Columbia University observes the policy,[18] established in 1930, that no member of the faculty or staff of the College should take out a patent on any medicinal, therapeutic or health substance or process, unless required to do so under the terms of a contract with the government or other outside sponsor. This policy differs from the general university policy,[19] which provides that in other divisions of the University patents may be obtained through University Patents, Incorporated, a patent-holding agency wholly owned by the University. This agency in turn assigns the patents to Research Corporation for management under an agreement with that organization. The only patent held by any one in the medical faculty is one on vitamin D, obtained by Dr. Theodore F. Zucker in 1924 under an old arrangement with University Patents, Incorporated. The question of patents has been discussed from time to time by the staff of the College of Physicians and Surgeons, always with the same conclusion: that while research is a prominent part of the program of the College, there have been enough unhappy experiences with patents to make the staff unanimous in the opinion that they should not get involved with the problem.

Although procedurally in effect since 1931, a definitive policy[20] with respect to patents on inventions and discoveries, particularly those with medical or public health implications, was not formally adopted by the Trustees of the University of Pennsylvania until 1941. That policy is the result of extended studies by both the faculty and trustees, during which a committee of the faculty went on record in 1933 with the following resolution[21]:

> That inasmuch as the University of Pennsylvania, like other similar institutions, is dedicated to education and the increase of knowledge in many fields, it is and should be the policy of the University that any discoveries, inventions or improvements made by it, through the members of its faculties or otherwise, which result, in the field of medicine in the alleviation of human suffering, or in the field of science in promoting in any way the welfare of humanity, should not be restricted by the University, but should be announced to the world so that such benefits may be freely enjoyed by all, and without pecuniary profit either to the University or to any one in its service. The University does not consider it necessary to call upon those in its service to execute formal agreements with it covering the situation, as is the cases in business enterprises, as it is confidently believed that the foregoing principles constitute the incentive and inspiration for their efforts.
>
> That nothing contained in the foregoing resolution shall prevent the University taking out patents at any time in order to protect an investigation prior to the completion thereof, any such procedure to be subject, however, to the principles above set forth in regard to the results of such investigation, when completed, being dedicated to the use of the public without pecuniary profit to the University or to the investigator, and this Committee will authorize the application for such a patent upon consideration of the facts submitted to it in any instance, and when in its best judgment such protection is necessary or advisable for any particular line of investigation.

The Trustees have declared it to be the policy of the University of Pennsylvania that any invention or discovery which may in any manner affect the public health, such as a new drug, process or apparatus intended primarily for medical or surgical use, shall not be patented for profit, either by individuals in the employ of the University or by the University itself. In order to prevent the capitalization and exploitation by others of any such discoveries or inventions and in order to protect the public, it may, however, from time to time be considered advisable to patent such inventions or discoveries with the sole intention of protection without profit. It is felt that this policy, which stipulates that neither the University nor the inventor shall receive profit from an invention or discovery in the medical field, removes the profit motive from medical investigation. In the case of sponsored research it need give nothing more than a head start on his competitors to the financial supporter of the project and leaves the University in the position of being able to obstruct efforts to exploit the public.

It is the general policy of the Medical Branch of the University of Texas, which is somewhat at variance with the patent policy[22] observed in the other units of the University, to allow members of the staff to make their own arrangements with regard to patents which may result from their research work. The Medical Branch, which includes the School of Medicine will not accept grants from foundations or commercial concerns for the support of research which carry any restrictions regarding patents or any other detail of the research work, apart from its general objective. There is a general understanding that, if a patentable process develops, the person concerned may seek the aid of an outside research foundation or patent management agency, such as Research Corporation, if he so desires. On the other hand, he is free to make patent arrangements with commercial concerns, with respect both to obtaining the patent and to administering it. It is also understood that, if a patent is obtained by a person as a result of research in one of the Medical Branch laboratories and royalties are involved, a proportion of the royalties shall be allocated to meet research expenses in the laboratory concerned. However, this principle is followed on an individual basis.

The Medical College of Alabama does not permit patents to be taken out on discoveries of any drugs therapeutic agents or appliances by members of the faculty of the school. In this respect the policy is generally applicable throughout the University of Alabama, of which the College is a division. Under the general university patent policy, provision is made for the handling of other types of discoveries and inventions through a University Patent Committee. In the event that a member of the faculty of any division of the University makes an invention which is patentable, the University waives all claim to a share in the royalties unless the University has made a substantial contribution in institutional time, money or facilities toward the production of the invention. If the University's contribution is $200 or less, the inventor is under obligation to reimburse the University for such contribution if he derives sufficient profits from the invention to do so, even though the patent rights remain the sole property of the inventor. If the University's contribution is in excess of $200, the invention becomes the property of the University and a percentage of the net profits derived from the sale or exploitation of the invention is allotted to the inventor.

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[18] Minutes of Faculty of Medicine, College of Physicians and Surgeons, Columbia University, Dec 15, 1930

[19] Research and Patent Policies and Procedures, Columbia University, pp. 11-16, 1944.

[20] Procedures for Obtaining Support of Research Programs and Policy with Respect to Research for Private Industry, University of Pennsylvania, pp. 12-13.

[21] Palmer, A. M.: University Patent Policies, 1934, pp 29-30.

[22] Patent Policy of the University of Texas (adopted by the Board of Regents on March 24 1945)

[23] Regulations of the University of Arkansas, Sect. 31.

GENERAL UNIVERSITY POLICIES

The patent policy of the University of Arkansas School of Medicine does not differ from that of the University,[23] which was adopted in 1945. In formulating that policy the University recognized that it has a responsibility to the state for discoveries and inventions made by members of the staff while engaged in research work as a regular part of their University duties. Such inventions and discoveries, including those which may have commercial application or should be patented in the public interest, are controlled by the University through a Committee on Patents which makes an equitable division of any royalties or profits that may be derived from their sale or licensing arrangements. The adoption of the general university policy was the result of the only experience which the University has had with the patent problem, when a member of the medical faculty developed a new method of producing xanthopterin which was thought to have commercial value but which eventually was not patented.

The University of California has a general university patent policy,[24] adopted in 1943, which applies to all employees of the University, including those in the Medical School. All matters relating to patents in which the University is in any way concerned are administered by a University Board of Patents which has full powers, subject to approval by the Regents of the University, to examine the merits of each potentially patentable project, to recommend the action to be taken, to facilitate patent applications, to protect both the University and the inventor, to arrive at an equitable determination of the rights of all concerned, to accept assignment of patent rights and to administer them in accordance with the best interests of the University, the inventor and the public. Assignment to the Regents of whatever rights the inventor or discoverer may possess in a patent or appointment of the Board as agent of the inventor or discoverer is optional on the part of the faculty member or employee. Any net income accruing to the Regents is devoted, first, to promotion of research within the University and, second, to general university purposes.

In dealing with discoveries and inventions in the medical and pharmaceutic fields the Division of Biological Sciences at the University of Chicago, in which is included the School of Medicine, is governed by the general patent policy[25] of the University as adopted by its Board of Trustees and incorporated in the statutes of the University:

> The University of Chicago's basic policies include complete freedom of research and the free, unrestricted dissemination of information. In view of these policies, the University will not profit financially from research by means of patents, royalties, or licensing agreements. Members of the staff will not be permitted to receive direct or indirect financial returns from patents based on work performed during the period of their employment by the University, or to make arrangements for such returns which take effect after such period. The University will coöperate with industrial organizations by conducting fundamental research projects financed by grants from such organizations and will make research reports to the grantors, [illegible] of the results. The University will not permit its name or the names of its investigators to be used in advertising.

The Division of Biological Sciences had been operating essentially under this policy for several years before the official university policy was adopted in 1943. It was applied in the fields of biology and medicine before that time because of the belief that income through patent royalties should not accrue to the University or its staff from discoveries which have a bearing on the prevention or treatment of disease or the preservation of health. It is recognized, of course, that the patenting of some discoveries may be necessary or desirable for the protection of the public interest or for other reasons. Depending on circumstances the inventor may, with University approval, take out a patent and dispose of it by assignment to a person, firm or organization who has supplied the funds for support of research or to some agency independent of the University, such as Research Corporation. This is done by free assignment, without financial return to the University or the inventor.

The patent policy of the University of Illinois College of Medicine is identical with that of the University,[26] but as a general practice applications for patents are discouraged in the College, although a patent may be sought for the purpose of controlling the quality of a patentable product. Under the general university policy the principle is recognized that the results of experimental work carried on by or under the direction of the scientific or teaching staffs of the University, the expenses of which are paid from university funds or from funds under the control of the University, belong to the University and to the public, and should be used and controlled in ways to produce the greatest benefit to the University and to the public. The practice is, therefore followed of taking out patents on valuable discoveries and inventions which may be expected to have a basic relation to other discoveries or inventions of commercial importance. The patents are assigned to the Board of Trustees of the University for a nominal consideration and the Board administers the rights under the patents in ways to suit the conditions, dedicating the patent to the public or licensing its use. The facilities of the University of Illinois Foundation may be used in the commercial exploitation of the patent rights. The patentee is paid a share of any sum above a nominal royalty that may be received by the University.

Although the University of Kansas School of Medicine has not had any experience with patent problems, the School would follow the general policy[27] of the University and utilize the facilities of the University of Kansas Research Foundation. Under that policy any one who believes that an invention resulting from a research project sponsored by the University should be patented would present the matter to a faculty advisory committee, appointed by the Chancellor of the University, which would determine whether or not the Foundation should prosecute a patent application on the invention. In the event that any sum over and above the cost of obtaining a patent should be received by the Foundation, a fair share of the profits (at least 15 per cent) would be paid to the patentee, and the remainder of the profits would be used to finance the activities of the Foundation and to sponsor further research in the University. In the case of cooperative research sponsored in part by an outside agency, the written contract between the University and the cooperating agency would include a statement that all the results, including inventions, belong to the University and would be so used and controlled as to produce the greatest benefit to the public. If all the costs are paid by an outside sponsor, he would be entitled to have all patents assigned to him, the University reserving only the right to publish all fundamental data of value to science and technology.

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[23] [illegible]

[24] [illegible] California, Aug. 15, 1943.

[25] Statutes, University of Chicago, p. 63.

[26] Patents on Discoveries and Inventions, University of Illinois Statutes 44, pp. 16-17.

[27] Minutes of the State Board of Regents, June 11, 1943.

The University of Louisville School of Medicine follows the general university patent policy,[28] adopted in 1935, which includes provisions covering both (1) the administration of patents and possible income from such patents and (2) the conditions which should attend inventions or discoveries made by members of the staff of the University. An Administrative Board of Patents, established by and subject to the direction and control of the Board of Trustees of the University, has authority "to accept for and on behalf of the University by assignment or otherwise, either directly or through trustees or holding corporations, patent applications, royalties, licenses, or gifts therein governing discoveries, inventions or processes, when produced by members of the staff of the University by use of University laboratories or otherwise." A patent assigned to the University is administered by the Board in such manner as it may determine, provided that if the patent is sold or royalty for its use is received, one half of the money thus realized by the University would be paid to the patentee and the other half assigned to the University.

A definite patent policy for the entire university, adopted by the Board of Regents of the University of Nebraska in 1946, applies to the College of Medicine as well. That policy was established for the purpose of stimulating inventive genius, encouraging the disclosure for the public benefit of discoveries and new inventions made at the University by its faculty personnel and employees, and defining the rights of the University in returns from resulting patents. The title to a patent on any discovery or invention belongs to the employee, and he is free to develop or handle it in any manner he sees fit, provided that when total net royalties or other compensations are less than $1,000, no payment to the University is required, but when they amount to more than $1,000 and less than $5,000 per year, 10 per cent of the excess of such royalties or other compensations above the sum of $1,000 and less than $5,000 shall be paid to the University, and when they amount to more than $5,000 per year, the royalty to be paid to the University shall be 10 per cent on all the amount above $1,000 and less than $5,000 and 20 per cent on all amounts above $5,000. In the absence of a specific contract to the contrary, the provisions of the policy are incorporated in the employment agreements of faculty personnel and other employees of the University.

The Stanford University School of Medicine follows the general university policy in the handling of patentable results of scientific research in relation to medical and pharmaceutic discoveries. Whenever any member of the staff or other person making use of the laboratories or other facilities of the University makes a discovery or invention, or otherwise believes a valuable invention may result from his research, he is required to communicate that fact to the executive head of his department or school. The matter is then referred to the Patent Committee of the University, which examines into the nature of the discovery or invention and, if in the opinion of the committee it should be protected by patenting, recommends its assignment to the University. The University reserves the right, in its discretion, to manage and exploit all patents assigned to it in the public interest and in such manner as it considers consistent with the best interests of the public and the University. Ten per cent of any gross royalties or other revenues received by the University is paid to the patentee, except when the patentee is a member of an organization whose ethics deny the right of its members to receive such revenues or when the patentee is employed or assigned to work on a specific investigation. After all proper expenses have been met, the remainder is appropriated to the department or school in which the discovery was made for research in the same or related fields. Any revenue in excess of the reasonable needs of such research is placed in a patent pool fund for allocation to the support of other research by the Board of Trustees on recommendation of the President of the University.

The University of Utah Medical School follows the general policy of the University adopted in 1944, which provides that patents should be administered in such a way that the public receives the maximum benefit. In order that the patents may be put to work and developments under them made available to the public, all patent matters, including those arising in the Medical School, are handled by a University Patent Committee. It is believed that the public can best be benefited, in some instances, by actual transfer of patent ownership from the University to supporting companies or agencies and, in other instances, through licensing arrangements by which the control is left with the University. Either exclusive or nonexclusive licenses may be issued, depending on the circumstances. Ten per cent of the net royalties or other revenues received from patents by the University are paid to the inventor, except in cases in which some other division of the income is considered more appropriate. The remainder, after meeting all proper expenses, is allocated to the University Research Fund. The University feels that, in the handling of patents, it should be activated by a desire to benefit the largest number of persons in the most economical and effective way.

GENERALLY ACCEPTED PRACTICES

Certain of the medical schools, affiliated with universities which do not have formal patent policies, follow the general practices of those universities in permitting faculty members and other employees to exercise their own judgment in handling the patentable results of their research efforts but encourage them to utilize the facilities of special research foundations, independently incorporated but closely related to the institutions. These foundations, such as the Cornell Research Foundation, the University of Tennessee Research Corporation and the Wisconsin Alumni Research Foundation, are available to act as patent management agents for the universities concerned, their medical schools, and the individual inventors, through the voluntary assignment of patent rights.

As in the rest of the University, patent matters arising in the Cornell University Medical College are handled through the Cornell Research Foundation. The Foundation was established in 1931 with "power to act in all matters concerned with the acceptance, promotion, management, and protection of all patents in which Cornell University may be interested, with power to take or acquire assignments of patents, to permit commercial development of the same through sales, licenses, or the like, and to receive gifts and devices which may be offered in aid of research through the activities of such Foundation."[29] Since 1945 it has been the general policy of the University in making contracts with grantors or sponsors of research programs not to agree to give the grantor or sponsor more than a nonexclusive license under any patents that may result from the research. However, in cases in which the grantor or sponsor pays all expenses of the research, including overhead, the University may in exceptional cases agree to grant an exclusive license or to assign all rights in the patent to him.

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[28] Excerpts from the minutes of the Board of Trustees, University of Louisville, September 25, 1935

Patents resulting from research in the University of Tennessee College of Medicine are handled through the University of Tennessee Research Corporation founded by the University in 1935. The main purposes of the Corporation are the holding of title to patents issued on research work by members of the University staff and the promotion of the use of the inventions and discoveries covered by these patents.[30] The University has no formalized patent policy, but all members of the faculty, including those in the College of Medicine, are encouraged to use the facilities of the Corporation to relieve them from all concern with the administrative and commercial aspects of patent management. It is believed that the major benefits come from the fact that the Corporation serves as a means of protecting results of research from selfish exploitation or suppression by interests which might gain control in some way. Also, the Corporation provides a link between the laboratory and the field of practical application.

In the University of Wisconsin Medical School, as in the rest of the University, the individual research worker is privileged to handle the patentable results of his scientific research in any manner that he sees fit. Some have assigned their inventions and discoveries to the Wisconsin Alumni Research Foundation as their agent and have permitted such profits as have accrued from these discoveries to be compounded through this agency. The Foundation was organized in 1925 "to promote, encourage, and aid scientific investigations and research at the University and to assist in providing the means and machinery by which the scientific discoveries and inventions of the staff may be developed and patented, and the public and commercial uses thereof determined; and by which such utilization may be made of such discoveries and inventions and patent rights as may tend to stimulate and promote and provide funds for further scientific investigation and research within said University."[31] When patentable ideas developed by university faculty members are voluntarily turned over to the Foundation, efforts are made to commercialize them, with the understanding that after the cost of development has been recouped, any remaining moneys are to be employed in the support of research in the natural sciences. With respect to medical discoveries and inventions, the attitude is taken that patents should be secured if a lack of control in the use of the patented article might result in undue exploitation of the public, in lack of uniformity of standardization or in confusion of the public mind as to the inherent values of the product. In certain types of medical discoveries, the Foundation considers itself obligated to administer the patents without thought of any financial return other than that required to safeguard and control the proper use of the product and to provide funds for clinical and scientific work in connection with the discovery.[32]

The College of Medicine of the Ohio State University follows the general practice of the University in using the facilities of the Ohio State University Research Foundation in the handling of patent matters, as well as sponsored research projects. Except in connection with research projects conducted under contracts made by the Foundation, the University has no formalized patent policy other than the provisions in the state statutes that all rights accruing from patentable discoveries resulting from investigations carried out in the University laboratories with the use of University facilities are the property of the University and that the University may assign and transfer its rights or grant licenses as desired. It has been the general practice for the University not to apply for patents in the field of medical research, but rather to disseminate the results of such work in the widest possible way for the greatest public benefit. Patents in this field would be applied for only in those special cases in which the members of the medical profession felt that it was necessary for the protection or welfare of the public.

At Duke University it has been the practice in the School of Medicine since 1937 to assign patents to nonprofit research committees named by the President of the University and to use the revenue from royalties for the support of further research work at the School. Essentially, the plan provides for handling each case on its merits and in a manner that seems best, the procedure generally followed throughout the University. If an investigator has something that should be patented, the legal department of the University draws up an agreement for the assignment of the patent. Any royalties received are deposited to the credit of a special fund and expenditures from that account are made on the written recommendation of the research committee but not for the benefit of any individual person.

The University of Minnesota Medical School follows the general practice of the University, under which all patentable discoveries are referred to a University Committee on Patents, established in 1938. That committee is authorized to receive and consider applications from staff members desiring to secure patents, at University expense and with University control and participation in profits, and recommends to the Board of Regents agreements with staff members for the assignment of patents and arrangements covering the licensing of the patents. One fourth of all royalties are given to the staff member when the patent is in the general field of his employment, and one half when it is outside that general field and University funds and facilities were not used in the development of the patent.

It is the consensus of the executive faculty of the School of Medicine of the Tulane University of Louisiana that professional standards would be violated if either the inventor or the School derived financial profits from patentable devices and processes. Several years ago, when a faculty member who had developed an instrument sought advice on patent procedure, it was decided that neither he nor the School should hold the patent or enter into any arrangement through which there would be a monetary return. Accordingly, the specifications of the instrument were turned over to a reputable manufacturer under an agreement that the price would be held to a minimum. One item in the agreement, under which the inventor relinquished all claim to royalties, was that a reduction corresponding to potential royalties be made in the cost to the buyer. Three instruments have been developed by this faculty member and all three have been handled in the same manner, each with a different manufacturer. The precaution regarding cost of the manufactured instrument was taken in the public interest. The University itself, exclusive of the School of Medicine, has no patent policy except in relation to grants awarded through the University Council on Research. It is understood that, if a project supported by a grant from the Council yields any income, whether from patentable devices or processes or as royalties on books, such income up to the amount of the grant is to be returned to the research fund.

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[29] Policy of the Cornell Research Foundation, as contained in the minutes of the Board of Trustees, Cornell University, June 24, 1946.

[30] Charter of Incorporation, University of Tennessee Research Corporation.

[31] A Decade of Service, Wisconsin Alumni Research Foundation, 1935, p. 1.

[32] A Decade of Service, Wisconsin Alumni Research Foundation, 1935, p. 5.

The Washington University School of Medicine has for many years observed the general policy that no pecuniary profit should accrue to any person or stock corporation from a patent on a scientific discovery originating in the School. For the protection of the public a patent may on occasion be taken out, provided the rights are assigned to some nonprofit organization Any profits that might accrue from such a patent would be used for the support of scientific education and research, and not for any other purpose. The University does not have any formal over-all patent policy, although the question has been under study for some time, and the policy of the School of Medicine differs materially from the practices currently followed in the rest of the University, especially in the School of Engineering.

It has been the general practice of Indiana University and of its School of Medicine, neither of which has a formal patent policy although the question has been under study for some time and considerable work has been done on the formulation of a definite statement of policy, not to permit applications on the products of individual or school-supported research. In 1936 a separately incorporated body, the Indiana University Foundation, was established to finance research, handle patents, aid the University in undertakings for which funds were not otherwise available and generally perform such functions as the University, being a state institution, could not do for itself. Many of the contracts made by the University in connection with research grants contain clauses relative to the ownership of the inventions that may develop as a result of the grant. In most of these contracts the University has the option of retaining ownership of the invention in its own name or in the name of the Indiana University Foundation. Some also provide that the donor have a royalty-free license for the manufacture and use of the discovery Members of the faculty have also been permitted to sign contracts with commercial organizations furnishing financial support and to agree in the contract as to the patent rights, with the returns from royalties going directly to the research worker in some instances. It is felt that this plan is not objectionable and is broad enough to encourage substantial support of research studies by commercial organizations and that a stricter policy "would undoubtedly remove considerable support of research programs and would deny medical and graduate students the opportunity of gaining valuable research experience."

While deciding each case on its individual merits, the Western Reserve University School of Medicine follows, as a general rule, the practice of not patenting discoveries in the field of medicine. However, where it seems necessary in the public interest, patents may be taken out on a nonprofit basis. When such patents result from research financed by a commercial concern, the sponsoring concern is given a nonexclusive royalty-free license in its field for a limited time before other firms are granted licenses.

The University of Virginia School of Medicine is in general opposed to the patenting of inventions or discoveries by members of the medical faculty. In the only instance in which the question has arisen during the past ten years the inventor of a minor surgical instrument was advised against taking steps toward securing a patent.

At Temple University it is the feeling of the management, as well as the faculty of the Medical School, that patents should not be sought but that the worth while results of their research work should be given freely to the profession.

EACH CASE HANDLED INDIVIDUALLY

At the University of Rochester School of Medicine and Dentistry it is felt that it is usually best to resolve each particular problem as it arises, with a view to protecting the good name of the University and doing everything possible to obviate any criticism that the cost of the patented product to the ultimate consumer or patient was increased because of financial benefit to the University or the inventor.

Although the University of Colorado has no written patent policy, its School of Medicine has in the past followed the unwritten policy of patenting nothing and publishing freely the results of all research and development. It is likely that, in recognition of the attitude of the medical faculty, provision will be made for the licensing of certain patents on a nonexclusive royalty-free basis, as part of a general university policy which is presently under consideration.

At several of the other medical schools each case is handled individually as it arises and, in the absence of a general university or special medical school policy, an attempt is made to work out an equitable solution in each instance. This is the situation in the schools of medicine at Georgetown, George Washington and New York Universities. At the New York University College of Medicine, in accordance with a general procedure followed throughout the University, final action is taken only after consultation with the dean of the executive faculty and the secretary of the University.

The practice is followed at Vanderbilt University, both in its School of Medicine and in the University generally, of bringing inventions and other apparently patentable material to the attention of a University Patent Committee which reviews each case individually and recommends to the administration of the University the specific action and procedure for each case.

Neither the University of Michigan Medical School nor the University as a whole has a clearly defined patent policy, except with respect to contractual research conducted in or through the Department of Engineering Research. Outside of such research projects, each case is decided in the light of its own circumstance.

In the one instance in which a product of research in the University of Pittsburgh School of Medicine was found to have commercial value, a patent was obtained and the trustees of the University accepted the assignment of the patent rights, the income from royalties to be used to support further research without financial gain to the inventor personally.

While the University of Georgia does not have any specific patent policy, proceeds on the sale of several inventions made by members of the medical faculty are added to the budget for equipment and supplies for research in two departments of the School of Medicine.

Neither the Syracuse University College of Medicine nor the University itself has formulated a policy in regard to the handling of patentable results of scientific research. However, in connection with the activities of the recently organized Syracuse University Institute of Industrial Research, an industrial corporation for which research is conducted at the University in cooperation with the Institute will retain patent rights growing out of such research.

At the University of Maryland, which is at present working on a university-wide patent policy, which will apply to the School of Medicine as well, it is contemplated that the recently created State Institute for Industrial Research affiliated with the University will act as a patent management agency and will recognize the inventors among the faculty through royalty payments or some share in the income from patents.

A number of the other medical schools, associated with universities and colleges which do not have formal patent policies, have not had any occasion to develop separate policies or as yet to crystallize their thinking along these lines. The patent problem has never arisen at the medical schools of Baylor, Emory, Louisiana State and Marquette Universities, of the Universities of Oklahoma and Oregon, and of Tufts College and at the Bowman Gray School of Medicine, a division of Wake Forest College.

If the question should arise, the Emory University School of Medicine would follow whatever general university policy is adopted as the result of a current study being made by a committee of the university faculty. Should it become necessary to establish a patent policy for the University of Oregon Medical School, which at present has none, it would be developed in collaboration with the State Board of Higher Education as an over-all policy for the other units of the University as well as Oregon State College, which are all under the same governing board.

At Northwestern University a special trustee committee is currently giving consideration to a general university patent policy which will include medical patents and problems related to the Medical School. A similar situation exists at Loyola University, where the formulation of a university patent policy, that will apply to its School of Medicine as well, is in the discussion stage. A university committee is in the process of setting up such a policy for the University of Vermont, which does not have a definitely formulated patent policy at present, either for the University itself or for its College of Medicine. The same is true at the University of Southern California, where the subject has been under consideration for some time, both on a university-wide basis and with respect to the School of Medicine.

In the other seven university-affiliated medical schools no definite policies for the handling of the patentable results of scientific research have as yet been established, either for the universities themselves or for the medical schools, although the question has been under discussion from time to time at most of them. Included in this group are Boston, Creighton, Howard and Wayne Universities, the State University of Iowa, the University of Buffalo and the Albany Medical College which is embraced with Union College in the Union University system.

INDEPENDENT MEDICAL SCHOOLS

Of the ten independent medical colleges on the approved list of the American Medical Association only two have definite patent policies, although several of the others follow informal policies or general practices. Two of them—the College of Medical Evangelists and Hahnemann Medical College—handle patent matters through separately incorporated nonprofit foundations. The question of patents has arisen at most of the other schools and has been under discussion from time to time without any definite action on policy. On the occasions when the problem has been acute, each case has been settled on its individual merits. At the present time most of these independent medical colleges are giving consideration to the formulation of definitive policies or the revision of existing practices.

At Southwestern Medical College, under a policy adopted in 1945 by the Trustees of the Southwestern Medical Foundation, the corporate body under which the College operates, any salaried faculty member who desires to take out a patent on an original discovery has the option of either dedicating it to the public or assigning it to the trustees of the Foundation without consideration of personal profit. It is contemplated that the Foundation will not grant exclusive licenses on any patentable discoveries assigned to it. The policy has been under study with a view to having certain of the royalties returned to the College, but so far the trustees have taken no action. The question of whether the research worker making the original discovery should receive any benefit from the royalties is also under discussion.

Meharry Medical College has adopted a definite policy concerning patents in connection with a recently initiated research program and the establishment of the Meharry Biological Research Fund, under the direction and control of a special research committee, for the stimulation and development of research at the institution. Under this policy the discoverer receives a percentage (not less than 10 per cent) of the profit from any patent, the exact amount depending on the over-all cost of development. The balance, after the Research Fund has been reimbursed for its investment in the investigation, is held in the Fund for use in the support of further research or for allocation to the College for general educational purposes. The College has not as yet had any experience with patents and does not anticipate in the foreseeable future any patentable products from research now under way.

The Woman's Medical College of Pennsylvania has an informal policy which opposes the patenting, either by the College or by a member of the staff, of any medical appliance or any medical preparation. This is merely an expression of opinion by the faculty; no formal resolution has ever been adopted by the faculty or administration of the College.

The College of Medical Evangelists has no written policy regarding patents resulting from scientific research within the institution by members of the staff, but there is a general understanding that full-time employees should not profit personally from medical discoveries. In a number of instances patentable instruments developed by members of the staff have been turned over to the Alumni Research Foundation of the College of Medical Evangelists, a nonprofit corporation organized in 1943 primarily for the purpose of raising funds to aid the College in its research program.

In a reorganization which is now under way at Hahnemann Medical College some thought has been given to patent matters and the revision of existing practices. The College has had since 1939 a separately incorporated Hahnemann Research Foundation, organized to accept the assignment of patents resulting from research done under its auspices and to acquire patents by voluntary assignment or gift. In the disbursement of the net income from patents a predetermined share is given to the inventor. The Foundation handles all relations with industrial organizations involving patents, but the College also has, separate and distinct from the Foundation, a research committee made up of members of the college council (seventeen members of the major faculty) to consider, act on and approve all matters relative to research. Any research problems, including those which may involve patents, that may arise within the college faculty are referred to this committee for study. All questions of law and legal relations are within the sole jurisdiction of the trustees of the College.

While the New York Medical College has no fixed patent policy, it is the present practice, when accepting research grants from outside sponsors, to refer problems which may involve patents to their legal department before the contracts are approved or disapproved by the Research Committee of the College. Generally commercial firms have been protected in their patent rights.

The other four independent medical colleges have no established patent policies, although at Jefferson Medical College the question is at present under study by the board of trustees. At the Long Island College of Medicine the problem has been discussed from time to time, and at the Medical College of Virginia possible policies have been suggested at various times, but without any definite action at either institution. The Medical College of the State of South Carolina has as yet developed no policy for handling the results of scientific research conducted at the College.

SUMMARY

The patent question is currently under review at more than half of the seventy approved medical schools, at a number of them as part of new or revised general university policies. Obviously the patent problem is not a settled one in the medical schools and a wide difference of opinion exists among their faculty members as to the ethics of patenting a medical discovery, but in those schools, as in educational institutions generally, the question is being given thoughtful consideration at the present time. Much of the stimulation for the establishment of definitive patent policies stems from problems growing out of research projects sponsored by outside agencies, especially commercial firms. Frequently such practices as are currently followed are concerned solely or mainly with the results of scientific research conducted under grants from these outside sponsors.

At present there is a wide diversity of practice among educational institutions—and even at the same institution—in handling patentable discoveries and inventions growing out of scientific research. There is no common pattern of policy statement, administrative procedure, recognition of the inventor, determination of equities, assignment requirement, patent management plan, distribution of proceeds or protection of the public interest. Nor is there any convenient grouping according to type or size of institution, complexity of university organization or kinds of research undertaken. Existing practices vary from strictly drawn patent policies to laissez-faire attitudes and even an unwillingness to become concerned with patents.

Some institutions follow a hands-off policy, leaving to the individual inventor the responsibility for determining what disposition is to be made of the product of his research efforts. Others take the position that the institution has an interest in all research activity on the campus and have established formal patent policies or follow generally accepted practices for handling any patentable discoveries that may result. Still others observe a definite policy of not having a patent policy. A great many, however, have given little or no consideration to the patent problem, despite the increasing volume of scientific investigation on the campus.

Through the years certain institutions, faced with immediate situations, have formulated more or less definitive patent policies. Yet less than forty such policies have been formally adopted thus far, more than half of them during the past six years. At a number of other institutions practices and procedures are being currently followed which, though not definitely formalized, are generally accepted as applicable to research activities throughout the institution. A few have adopted special policies or recognize general practices for dealing with those results of scientific investigation that affect public or private health. Others have developed policies and practices only with respect to sponsored research.

Many of the formalized policies and most of the prevailing practices are currently under review to meet changing postwar conditions and current considerations in the institutions. The need at this time for critical examination of the whole question of what to do with the patentable products of research is well recognized. At a number of institutions, many of which have not previously had any patent policy, faculty and trustee committees are currently studying the question, with a view to formulating new, or revising existing, policies.

At many institutions each case is decided on its merits in accordance with a general policy or, in the absence of such a policy, by agreement among the parties concerned. A few still feel that they discharge their responsibility by merely publishing the results of investigations or by securing patents and dedicating them to the public. Others accept full responsibility for obtaining patents and administering the patent rights in the public interest. Many exercise control over the patents by issuing licenses and accepting royalty payments, either directly or through agents whom they have designated to manage their patents.

Some recognize the rights and interests of the inventor and share the proceeds with him, either under a prior contractual arrangement or by mutual agreement, but there is no uniformity in the division of the financial return from patents between the inventor and the institution. Even in those instances in which the proportion to be given the inventor is specified in accordance with a general policy, there is a wide variation among institutions in the amount allotted to the inventor. In other institutions the inventor's share is determined in each case after consideration by a special faculty or administrative committee. A few institutions include patent provisions in their contracts of employment, in some instances for all faculty members, but more often limited to members of the staff whose entire or major responsibility is research, especially contractual research.

At most institutions the compulsory assignment of patent rights is not considered desirable, except when necessary in connection with cooperative or sponsored research. Voluntary assignment is preferred and in many institutions is encouraged and facilitated through procedures and special machinery for handling patents set up within the institution. In many instances the services of an outside organization closely related to the institution and under agreement to act as its patent management agent are employed.

Patent management is a complicated business and is expensive. It requires a high degree of legal competence, administrative astuteness and promotional zeal—a combination of talent not always readily available in an educational institution. The patent search is a specialized technical service. The preparation and processing of patent applications are exacting work for legal counsel. The administration of patent rights demands careful attention to intricate details and constant watch for infringement and interference. The exploitation and disposal of patents, through sale and licensing agreements, require salesmanship of a high order.

It is natural, therefore, that most educational institutions make every effort to avoid becoming directly involved in the intricate legal and commercial aspects of patent management. Some endeavor to accomplish this by adopting a hands-off policy and refusing to handle patents. Others, for legal or fiscal reasons, use the facilities of separately incorporated patent management foundations, independent of, but closely allied to, the institutions by the terms of their charters and by the membership of trustees, administrative officers and faculty on the foundations' boards of directors. Still others have entered into agreements with Research Corporation, an independent nonprofit patent management foundation, to handle patentable discoveries in their behalf, with full protection of their interests and those of the inventors and the public.

A few attempt to handle patents as a part of the routine duties of already established administrative units, such as the comptroller's or business office. Others handle them through specially designated committees responsible directly to the administration or to the trustees of the university. A number have faculty committees on patents, which exist primarily for the purpose of insuring that pertinent institutional regulations are observed. Often these committees serve as advisory bodies and are charged with recommending action on matters that range from the desirability of taking out a patent to the determination of equities.

There are at least three distinct equities or interests involved in patentable discoveries or inventions resulting from scientific research in an educational institution: the inventor or inventors, the institution and the general public; to which must be added a fourth, the sponsor or supporter of the research, in the case of sponsored or cooperative research. When further developmental work is necessary, a fifth interest may be involved, although frequently it is the same as the sponsor or supporter of the original research.

The recognition and protection of these several and diverse interests naturally complicate any individual situation. Self interest, personal rights, professional ethics, institutional policies, employer-employee relations, academic freedom, contractual relations, patent law, business practices, commercial competition and the variables in individual cases are some of the elements that contribute to the problem. Nevertheless, to be equitable and effective a patent policy must provide for such recognition and protection, placing the responsibility where it can be best discharged, most expeditiously and with the minimum of burden on the regular administrative and teaching staffs of the educational institution.

While there is at present a great variation of practice among educational institutions generally and among medical schools, efforts are being made by many of them to formulate definitive research and patent policies. This is a healthy sign and is to be encouraged and facilitated. Especially so far as medical discoveries are concerned, protection of the public interest, as well as the interests of the institutions themselves and the inventors, requires that existing differences be resolved and that some agreement be reached among all the parties concerned.

If the proper safeguards are established, our universities and particularly our professional and technologic schools can contribute, even more extensively than they have in the past, to the progress of science through the most effective utilization of their research facilities and the present short supply of scientific and technical personnel.

VALUE OF CONSERVATIVE MANAGEMENT IN CERVICOBRACHIAL PAIN

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The complaint of pain in the neck, shoulders and extending into the arm is of relatively frequent occurrence. It is believed that the cause or combination of causes which can bring on these symptoms is not widely understood and, therefore, it is the purpose of this paper to review the various etiologic factors that may produce cervicobrachial pain, and in particular to stress the favorable results obtained by conservative treatment.

To avoid confusion, I have arbitrarily omitted consideration of patients with symptoms resulting from pathologic changes in the shoulder such as subacromial bursitis or a tear in the musculotendinous cuff; i. e., conditions which do not cause interference with the neurovascular structures. I wish to emphasize, however, agreement with Freiberg [1] that lesions of the shoulder girdle may initiate cervicobrachial pain by concomitant diffuse muscle spasm accompanying the lesion. Such pain may likewise follow voluntary splinting of the affected arm with depression of the painful shoulder, as so frequently occurs after trauma.

LITERATURE

Under a wide variation in titles the literature contains

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Read before the Section on Orthopedic Surgery at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

[1] Freiberg, J. A.: Scalenus Anterior Muscle in Relation to Shoulder and Arm Pain, J. Bone & Joint Surg. 20: 860-869 (Oct.) 1938.

numerous references[2] to neuritic pains and vascular disturbances in the upper extremities. The greater number of these papers are concerned with reports on (1) cervical rib, beginning with the original article of Gruber,[3] and later reports of Adson and Coffey[4] and Patterson,[5] and (2) on the scalenus syndrome by Naffziger and Grant,[6] Ochsner, Gage and DeBakey.[7] That other causes exist was brought out by Wright[8] in describing the symptoms resulting from hyperabduction of the arm, and by Falconer and Weddell[9] in reporting the costoclavicular syndrome. Todd[10] has discussed the importance of posture in the cervical rib syndrome. Spurling and Scoville,[11] Michelsen and Mixter[12] described protrusions of intervertebral disks in the cervical portion of the spine. Walshe and associates[13] presented a detailed analysis of pressure effects associated with not only cervical rib but "normal" first rib, as well as emphasizing, as have many writers, the significance of an alteration in the normal topographical relation of the thoracic cage to the shoulder girdle.

DIFFERENTIAL DIAGNOSIS

It is most important to obtain a detailed history with particular reference to the onset of symptoms, distribution of pain and, if present, the degree of vascular change. This is followed by a neurologic and orthopedic examination, including roentgenograms of the cervical portion of the spine.

The roentgenograms permit division of the patients into two groups: (*a*) those with structural abnormalities such as cervical rib, asymmetry and variation of the thoracic outlet and arthritis and (*b*) patients with negative or normal roentgenograms. It is understood that if protrusion of an intervertebral disk in the area of the cervical part of the spine is suspected, this is localized by myelogram study. It is likewise stressed that abnormalities in the roentgenogram are not necessarily the sole cause of complaint, since in the average patient seen these variations have been present for years without causing symptoms, but at least such anomalies are suspect.

Therefore, the diagnosis in patients with cervicobrachial pain, with or without vascular change, can be considered under the headings listed in table 1.

It is not within the scope of this paper to discuss the details of all these factors, as they have been considered in the literature. It is pertinent, however, to comment on some aspects of the diagnostic problem.

Observations on patients at the clinic have convinced me that the causal agent most commonly present in patients experiencing cervicobrachial pain is that here classified under postural defects; in other words, abnormal relationship of the shoulder girdle to the thoracic cage and its attached structures. This applies in both groups; that is, patients with and those without variations from normal anatomy as shown in the roentgenogram. It is believed that sagging and drooping of the shoulders exert tension on the brachial nerve roots and blood vessels, stretching the structures still more tightly over the upper edge of the thoracic outlet.

TABLE 1.—*Diagnosis in Patients with Cervicobrachial Pain*

Group A. Abnormalities Apparent in Roentgenogram
    Cervical rib
    Abnormal first rib
    Cervicodorsal scoliosis
    Asymmetry and variation in thoracic outlet
    Arthritis
    Protrusion of cervical disk shown by myelogram
Group B. Abnormalities Not Apparent in Roentgenogram
    Scalenus anticus syndrome
    Costoclavicular compression
    Hyperabduction syndrome
    Causalgia or sympathetic dystrophy
    Postural defects; i.e., abnormal relationship of shoulder to thoracic cage

Todd[14] reported that the relative position of the shoulder to the thorax is high in children but at puberty a gradual descent occurs to the adult position. This is more pronounced in the female, in whom the ultimate position of the shoulder is more sloping than in males. This author therefore suggested a relationship between the position of the shoulder and the greater incidence of symptoms of cervicobrachial pain in women and offered an explanation for the rarity before adolescence. Furthermore, as Jones[15] pointed out, when symptoms occur they are most commonly of nervous origin, since the lowest cord of the brachial plexus is more intimately related to a cervical rib, an abnormal first rib or a normal first rib than are the subclavian vessels.

The embryologic development and anatomy of the structures about the upper end of the thoracic cage were summarized by Patterson,[5] who observed that in quadrupeds and human embryos the blood vessels and nerves to the upper extremity, along with the ribs, come off more or less at right angles to the spinal column as the latter is carried parallel to the ground. But as man begins to assume the upright position the upper extremities pull downward parallel to the spine and the brachial plexus and subclavian vessels, on the outside of the thoracic cage, thus straddle the first rib, or if a cervical rib is present, pressure on these structures is increased (fig. 1).

Also, the thoracic cage in quadrupeds and human embryos is broader from front to back, whereas in adult man the cage is broader from side to side. This increased lateral diameter adds to the traction forces on the brachial plexus and subclavian vessels.

In regard to asymmetry and variation in the thoracic outlet, as pointed out by Walshe and associates,[13] in the presence of such anomaly, the thoracic outlet tends to be narrower on one side than on the other, different in outline on one side, and it is often higher on one side. Hence, the plane of the opening is abnormally tilted both in the transverse and anteroposterior directions. It therefore follows that there must be abnormalities in the insertion of the scalene muscles, which are homologues of the intercostal muscles. Furthermore, the raising and asymmetry of the thoracic outlet increase the possibility that maladjustments may occur between the nerve roots and bones as well as the associated muscular abnormalities which tend to contribute to abnormal conditions and hence symptoms. Likewise, it is evident that a stretching effect on the lower brachial trunks of the plexus is influenced appreciably by diminished obliquity of the thoracic outlet, which effect would be exaggerated in the case of cervical rib.

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[14] Todd, T. W.: The Descent of the Shoulder After Birth: Its Significance in the Production of Pressure-Symptoms on the Lowest Brachial Trunk, Anat. Anz. **41:** 385-394, 1912.

[15] Jones, F. W.: On the Relation of the Limb Plexuses to the Ribs and Vertebral Column, J. Anat. & Physiol. **44:** 377-393, 1909-1910.

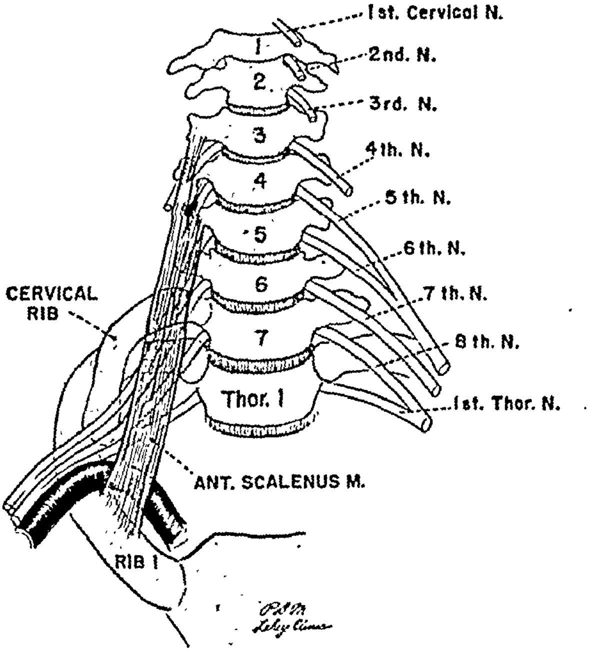

Fig. 1.—Illustrating the relation of cervical nerves to cervical vertebrae as well as the relationship of the plexus and subclavian vessels to the first rib, a cervical rib and the anterior scalenus muscle

In the growth of the clavicle, obtaining its full development around 20 to 25 years of age, one would then expect a full stretching effect on the lower nerve roots of the plexus to be apparent at that time. If the clavicle projects up and outward, as frequently occurs in men, there will be less constant stretching of the lower brachial nerve trunks than if it projects down and outward as is the case in women. Also, in women there is greater movement of the upper part of the chest than in men, and hence more likelihood that the nerve trunk may be interfered with by the first rib, even if that be normal, and this is more pronounced if cervical ribs are present.

With this general background it is to be borne in mind that the clavicle may be an important factor causing compression of the artery in the presence of an abnormal rib and it probably plays a more significant role in the production of symptoms in the presence of an abnormal rib than is commonly realized, because the clavicle and the abnormal ribs together may constitute a vise in which the third part of the artery as well as the plexus is recurrently gripped. This hypothesis is also supported by the studies of Sampson, Saunders and Capp,[16] who investigated normal and abnormal venous patterns of the anterior chest wall. They concluded that prominent veins in this area were most commonly caused by compression and partial obstruction of the subclavian vein between the clavicle and first rib.

Degenerative arthritis of the cervical portion of the spine may be the cause for neuritic symptoms in the upper extremities, particularly when there is sufficient productive bone change to cause exostoses or hyperplastic bone to protrude posteriorly into the intervertebral foramina (as shown in figure 2). As emphasized by Nachlas,[17] "It is in their passage through the intervertebral foramina that the nerves are particularly subject to irritation." Furthermore, the posterior wall of this canal consists in greater part of capsule, so that when the latter is swollen or distended by intra-articular fluid there is an additional protrusion into the lumen and hence impingement on the nerve root. As this same author pointed out, within the relative protection of the intervertebral foramen the nerve structure is such that there is a particular susceptibility to irritation of the *sensory* neuron because in this area the posterior roots lose the protective myelin sheaths of the axons, while the motor fibers, on the other hand, enter the canal anteriorly, do not lose their sheaths and form a much smaller cable than the sensory root.

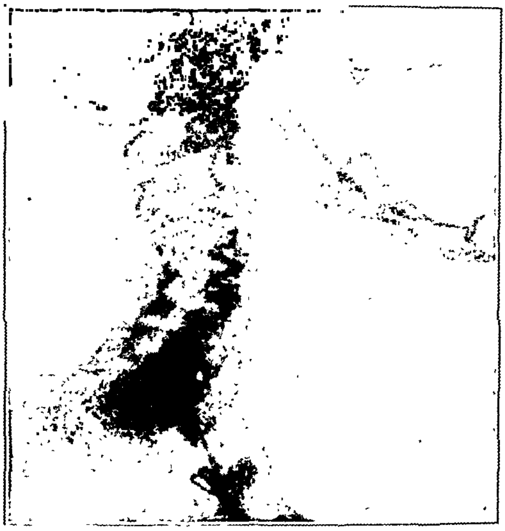

Fig. 2.—Oblique roentgenogram of cervical portion of spine. Note arthritic spurs projecting into the intervertebral foramina.

There are numerous references to the diagnosis and surgical treatment of protrusions of intervertebral disks in the area of the cervical portion of the spine. In my opinion, cervicobrachial pain is not so often due to protrusion of cervical disks as the reader might assume from perusing the literature. From 1938 to 1946 this diagnosis was proved in 15 patients by members of the neurosurgical service, and this group comprised only 2 per cent of the total number of patients with protrusions of disks found at operation.

Of the cases in which roentgenograms of the cervicodorsal part of the spine were normal, the cases which have received the most attention in literature were classified under the general heading of the scalenus anticus syndrome. From 1935 to 1945, 38 patients have been subjected to surgical treatment; i. e., division of the anterior scalenus muscle, by the general surgical, neurosurgical and orthopedic services. No patient with symptoms corresponding to the generally accepted diagnostic findings of this group has been surgically treated on the latter service in the last two years because my associates and I have become increasingly convinced that the basic cause for symptoms appeared to be

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: J. B. deC. M., and Capp, C. S.: Vein by the First Rib and Clavicle, rommence of Chest Veins as a Sign ırt J. 19: 292-315 (March) 1940.

[17] Nachlas, I. W.: Brachialgia: Manifestation of Various Lesions, J. Bone & Joint Surg. 26: 177-184 (Jan.) 1944.

variations from the normal in relationship of the shoulder girdle to the thoracic cage, and relief is obtained by correction of the postural defects.

It is interesting to note that in none of the patients personally operated on was there clearcut histologic evidence to prove the presence of a hyperplastic or unusually fibrotic anterior scalenus muscle. It is difficult to conceive of a type of stimulus that would cause this muscle alone to be hyperplastic to the exclusion of all other adjacent muscles.

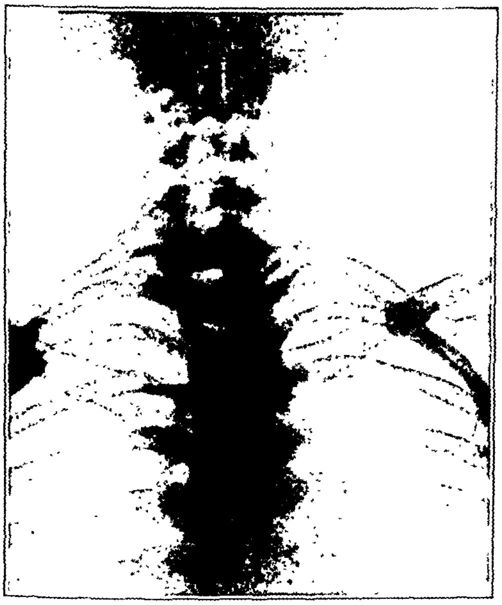

Fig. 3.—Anterior-posterior roentgenogram of cervical portion of spine showing a large cervical rib which articulates with first rib.

Beneficial effects have followed operation in carefully selected cases owing to the fact that one jaw of a vise compressing the neurovascular structures running to the extremity has been removed in precisely the same way that a resection of a portion of an abnormal first rib has relieved individuals in whom cervicobrachial pain was the result of costoclavicular compression, as described by Falconer and Weddell.[9]

I wish to emphasize, however, that in the presence of cervical ribs over 5 cm. in length (Adson and Coffey[4]), and especially those which articulate with the first rib (fig. 3), resection of the anomalous rib is indicated in addition to division of the scalenus muscles.

In 3 cases the basis for the cervicobrachial pain was the hyperabduction syndrome, as described by Wright.[8] It is to be remembered that, as this author indicated, occlusion of the subclavian artery and pressure on the plexus by hyperabduction of the arm is a normal phenomenon on the basis of studies on 150 young adults who, without symptoms, were put through this test. Hence, the anatomic arrangement (fig. 4) that would lead to the presence of this syndrome is present in a high percentage of persons, an important observation inasmuch as the position of hyperabduction is widely but erroneously used as the test for the scalenus anticus syndrome. As reported by Ochsner, Gage and DeBakey,[7] the scalenus muscles are actually relaxed rather than tense in the position of abduction, and hence pain is relieved in the presence of the scalenus anticus syndrome.

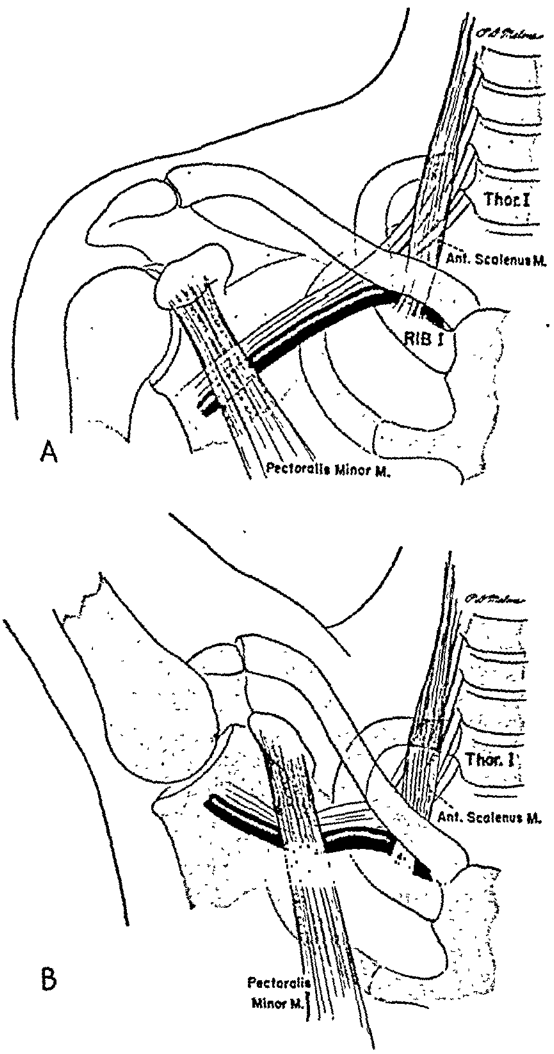

Fig. 4.—The hyperabduction syndrome. Symptoms result from compression of plexus and the subclavian vessels by the pectoralis minor mucle when arm is widely abducted. *A*, arm at side of body. *B*, arm widely abducted. (Redrawn from photographs by Wright.[8])

TREATMENT

The majority of the patients were managed on an ambulatory basis, reporting to the office for instruction in the details of the program of treatment, which is then carried on at home. Thereafter the patient comes in for frequent examinations to observe progress. The exceptions were those persons who exhibited pronounced generalized spasm of the musculature of the neck and shoulders. Confinement to a firm flat bed accompanied by application of moist and dry heat with gentle massage materially expedited relaxation of the muscle spasm. Particularly was this noted in patients with arthritic changes in the cervical portion of the spine. When protrusion of a disk in this area was suspected, as evidenced by radicular distribution of pain in the arm and absence of the usual cervical lordosis in the roentgenograms, intermittent traction to the head relieved pain. In the presence of severe disability and muscle spasm thought to be due to scalenus anticus or the costoclavicular compression syndrome, these patients were also instructed to lie in bed with small pillows under each shoulder, with consequent relaxation of the musculature about the upper portion of the thoracic cage.

Sleeping habits were investigated. In particular, the patient was instructed to sleep with the arms at the side of the body and to avoid abduction of the upper extremity.

In all patients the principal measure for relief of symptoms was a course of graduated active muscle exercises to reeducate and strengthen the elevators of the shoulder girdle, notably the upper fibers of the trapezius and the levator anguli scapulae muscles, as well as instruction to hold the cervical portion of the spine erect with the chin in and to overcome forward position of the shoulders in relation to the thoracic cage. In this connection it is important that the patient hold his head upward and backward, keeping the chin down or in and not simply extending the head backward, which actually may cause increased flexion of the cervical portion of the spine.

In 3 patients with persistent disability and whose roentgenograms did not show abnormalities, gentle traction manipulation with the patient under intravenous "pentothal" anesthesia was performed, with immediate improvement continuing on to complete absence of further cervicobrachial pain.

Eight patients came to us with typical histories of cervicobrachial pain and normal roentgenograms who had been treated elsewhere by the use of a Thomas collar of various materials and types. In our experience these collars are not well tolerated and have not been an aid in overcoming pain.

Many of the women patients, particularly office workers, were found to suffer from a relative vitamin B deficiency, the result of an inadequate diet. Administration of vitamin B complex three times daily, plus dietary instruction, corrected this situation.

Mild analgesics, notably acetylsalicylic acid compound, every three or four hours were of considerable assistance in breaking up the vicious cycle of pain, spasm, more pain and still more spasm, and so enabled patients to progress comparatively rapidly with their exercises.

Finally, the occupational habits that might contribute to faulty posture and muscle stress and strain were reviewed and suggestions were made to correct or omit the type of activity which would tend to produce cervicobrachial pain. Clerks and students who had occasion to spend long hours over a desk with the head and shoulders forward repeatedly noted improvement in symptoms after taking pains consistently to assume an erect posture when at work. This relation of occupation to production of cervicobrachial pain was particularly well demonstrated in a woman of 28, previously a teacher, who had never experienced symptoms until she went to work in a war plant at a task that required her to lift an object weighing about 4 pounds (1.8 Kg.) from below waist level to high above the right shoulder an estimated four hundred times daily. When first seen she was completely disabled, and it was felt that probably surgical treatment would be necessary, inasmuch as the roentgenograms exhibited a cervical rib. Changing her occupation, however, and going on the conservative program as outlined brought dramatic relief in one month's time, and she has remained asymptomatic for eighteen months.

The same program of therapy has likewise produced satisfactory results in those patients coming to us after trauma, such as a fracture of the clavicle or a rib. It is believed that the symptoms were essentially in relation to voluntary splinting and depression of the shoulder due to pain from the injury, causing altered relationship of the shoulder to the thoracic cage that resulted in continuous cervicobrachial pain. Symptoms were relieved when these postural faults were corrected.

It is not my contention that patients with cervicobrachial pain will never require surgical treatment, particularly persons with large cervical ribs. But I do believe that in all the types herein discussed initial conservative treatment is indicated and that in the majority of cases relief of symptoms can be obtained by these nonsurgical methods.

COMMENT ON CASES

Twenty patients with pronounced disability from cervicobrachial pain have been carefully studied. Abnormalities apparent on roentgenograms comprised cervical ribs, 3; cervical disk, 3; degenerative arthritis, 3, and cervicodorsal scoliosis, 1. Patients with normal roentgenograms were 3 with scalenus anticus, 3 with costoclavicular and 3 with hyperabduction syndromes. In 1 patient symptoms developed following trauma. The longest follow-up was seventy-two months; the average, 15.3 months.

The age of this group ranged from 24 to 60 years, the average 39 years. Women predominated over men in the ratio of 3 to 1. Fifty per cent of all patients were employed at tasks which required constant use of the arms or prolonged flexion of neck and shoulders. Thirty-five per cent were housewives, busy with dusting, sweeping, ironing, and so forth. In the remaining 15 per cent, occupation did not appear to be related to symptoms.

The results were classified as excellent, good, fair and poor. A patient was termed as having an excellent result if completely asymptomatic while performing his usual as well as out of the ordinary activities; a patient classified as having a good result experienced some minor discomfort but only when fatigued; a fair result was noted in patients relieved of severe, disabling pain but who continued to experience persistent minor discomfort; no improvement was classified as a poor result. There were 5 excellent results, and it is interesting to note that 2 of these patients had cervical ribs. The other patient with a cervical rib was classified as having a good result. That these patients may eventually come to surgical treatment is an obvious possibility, but they offer a striking demonstration of what can be accomplished by conservative treatment. Of the remaining patients, 11 had good and 3 fair results, distributed as shown in table 2.

TABLE 2.—*Results*

Diagnosis	Excellent	Good	Fair	Poor
Cervical rib	2	1		
Protrusion of cervical disk		2	1	
Degenerative arthritis		2	1	
Scoliosis		1		
Scalenus anticus syndrome	1	2		
Costoclavicular compression	1	1	1	
Hyperabduction syndrome	1	2		
Trauma		1		
	5	12	3	0

The final investigation of a presumptive protrusion of a cervical disk is a myelogram. In the first 2 of the 3 cases, the roentgenographic report was positive, revealing a defect between the sixth and seventh cervical vertebrae. However, the neurosurgical service considered the findings equivocal and in consultation it was decided to try conservative treatment, which has relieved symptoms for twenty-four and eighteen months, respectively. These patients are classified as obtaining a good result but report for periodic check-up examinations. The third patient was clinically similar to the first 2, and because she was so apprehensive, an initial trial of convervative treatment was decided on. After twelve months she is considered to have a fair result.

Patients in occupations which necessitate constant use of the arms and who are often subject to fatigue should be warned against overexercise. This was illustrated in patient 14, a dental hygienist aged 24, with cervicobrachial pain from a scalenus anticus syndrome. In addition to her regular duties she performed the exercises so assiduously that myositis of the neck and shoulder muscles developed, necessitating a short interval of bed rest to control this complication. Thereafter she went on to complete recovery.

Within the past three months 2 patients have been admitted to the orthopedic service because of disabling cervicobrachial pain which was finally proved due to causalgia or sympathetic dystrophy. In neither instance were we successful in relieving symptoms by the conservative regimen described. Complete disappearance of pain followed cervical sympathectomy by the neurosurgical service.

ABSTRACT OF DISCUSSION

Dr. I. W. Nachlas, Baltimore: The increasing recognition of the diseases in and around the neck with associated brachialgia makes it necessary to devote more attention to the treatment of this syndrome. Unfortunately the surgical procedures that were devised failed to solve this problem. It is noteworthy that with conservative methods Dr. Haggart was able to restore 20 consecutive patients with pronounced disability to usefulness, 17 with good and excellent results. He had no failures in this group. This is a heterogeneous group of illnesses that are grouped together only because of the common characteristics, pain in the neck and radiation down the arm. Obviously one pattern of treatment cannot apply to all of the diseases that may affect this area. The aneurysm of the brachial artery or the long irritative cervical rib may require surgical intervention. It is the common denominator, pressure on the brachial plexus, that permits the consideration of one group of therapeutic procedures. Dr. Haggart has presented many theses that have been propounded to explain these pains, but I cannot subscribe to all of them. If one carefully studies the neurologic radiations and tracks them back to an area where one common lesion can produce them one is greatly assisted in arriving at the diagnosis. My belief is that compression within the cervical intervertebral foramina is responsible in many instances. Hyperextension of the involved area opens these foramina, and it is remarkable how often and how promptly this procedure gives relief to the patient. Dr. Haggart's technics are excellent, but a few additional methods implied by him but not specified may be added: The flexion contracture with its muscle spasm must be overcome. Head traction and hyperextension strapping are useful methods. Some men have found injections of procaine hydrochloride in the muscles of value, but the hyperextension so acquired must be maintained by one of the methods available to orthopedists. The important thing to bear in mind is, as Dr. Haggart indicates, that conservative procedures are usually adequate.

Dr. James McAteer, New York: Dr. Haggart's paper is the best that I have read, and I have looked over all the literature. Dr. Nachlas said that most of the cases are due to arthritic changes in the foramina. Other men have said that cervicobrachial pain is due to the fact that the scalenus triangle has been narrowed down. Dr. Brickner, as far back as 1925, advised that some of these patients should have a portion of the first rib removed. Dr. Nachlas also spoke about the hyperextension. That has been helpful in some cases, but Brown and Kuhn brought out that hyperextension caused 3 cases. Hyperextension might bring about cervical brachialgia. In the Navy, it was found that in a large number of these cases the pain came on after a long period in which the men had no exercise. These men were well trained, brought out in excellent condition and good muscle tone, and then went out to the islands and lay around a long time with nothing to do. Suddenly, a ship would come along, and they unloaded it. Immediately, *they complained of pain in the back, shoulders and arms.* These men were helped by being put at rest for a time, and were started back on the road to recovery with physical exercises. I concur with Dr. Haggart that exercise is important. *In my own experience* I have found that gentle club swinging will help. One outstanding case came under my observation, of a violinist, a young lady who practiced for about six or eight hours a day. She wondered why she was getting pain. It was found to be due to her practicing such a long time, so the violin playing was stopped, she was started on physical culture, and put at rest with a pillow between her shoulder blades.A little trick which I use is to take a man's vest and sew a pillow or sandbag about 6 inches wide (15.2 cm.) in the back of the vest. The vest is then put on and fastened, and when the patient lies down, the correct position is maintained, *bringing relief.*

Dr. G.E. Haggart, Boston: Dr. Nachlas wisely advises a search for the neurologic radiation of pain, because in some instances there is a fairly well defined distribution of pain which indicates that the lesion is in a certain area. However, in many patients, and with the aid of neurologic consultations, we have experienced difficulty in clearly demonstrating the site of the etiologic factor. I believe that the various syndromes presented in this paper are real and, while they are not seen every day, if the ones frequently encountered are listed, a diagnosis is thereby more readily determined. I am much in accord with the use of head traction. Time did not permit details but in 3 patients with normal roentgenograms who did not respond to treatment, gentle traction manipulation with the patient under "pentothal" anesthesia resulted in rapid improvement. The remarks of Dr. McAteer bring up one other point; namely, that it is likewise extremely important that patients not overexercise. Dr. McAteer reports on these men in service with loss of muscle tone who experienced symptoms. That certainly does occur. The opposite situation may take place, however, as illustrated by a dental hygienist of 24 in whom severe pain developed. She performed the exercises so vigorously that myositis developed. Bed rest and a gradual resumption of the exercises resulted in relief of symptoms.

TREATMENT OF MULTIPLE MYELOMA WITH "STILBAMIDINE"

Clinical Results and Morphologic Changes

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Up to the present time 35 patients with multiple myeloma have been subjected to treatment with "stilbamidine" (4.4'—stilbenedicarboxamidine). In this article experiences which have been collected will be reviewed and morphologic changes in the cytoplasm of the myeloma cells which result from this treatment will be discussed.

CLINICAL RESULTS

A. Dosage.—"Stilbamidine" can be given intravenously. If no veins are accessible the drug can also be injected intramuscularly. After a first injection of 50 mg. and a second injection of 100 mg., each subsequent injection should amount to 150 mg. A total of fifteen to twenty injections is usually sufficient to alleviate the pain. "Stilbamidine" should not be autoclaved or filtered before use. The crystal-like substance should be weighed out. For intravenous use it is dissolved in 10 cc. of sterile water; for intramuscular use in 5 cc. of a 2 per cent solution of procaine hydrocholoride. Intramuscular injections should be given with a thin and long needle to prevent the solution from being deposited in the subcutaneous fat.

B. Precautions.—Before treatment is started the renal function should be measured. Phenolsulfonphthalein and concentration tests are necessary and the urea nitrogen and creatinine content of the blood should be determined. During the treatment weekly determinations of the blood urea nitrogen are requisite. These precautions must be taken because in patients with Bence-Jones proteinuria renal insufficiency is a common occurrence. Experience has shown that "stilbamidine" often exerts an unfavorable influence on the function of the kidneys which were previously damaged by protein precipitates in the renal tubules.[1]

In patients who have normal renal function and no Bence-Jones proteinuria the drug can be given daily. When Bence-Jones proteinuria exists and certainly when signs of renal damage are revealed, it is advisable to administer "stilbamidine" only every other day. In some patients with pronounced impairment of renal function the injections were given only twice per week. With care it is nearly always possible to prevent deterioration of renal function during the treatment with "stilbamidine."

C. Diet.—The diet should be poor in animal protein.[2] In test tube experiments the action of "stilbamidine" appears to be neutralized by the presence of nucleic acid. It has been found that arginine also, although in much higher concentration, has a neutralizing effect on the action of "stilbamidine." The neutralizing action of nucleic acid, and to a lesser extent of arginine, may well explain why the maximal effect of treatment with "stilbamidine" is obtained only if the diet is poor in animal protein.

D. Complications.—Aggravation of preexisting renal damage by injections of "stilbamidine" has already been stressed. In the doses mentioned hepatic function is not influenced. The same holds true for the peripheral blood picture; that is, hemoglobin, red blood cells and platelets. In no case in this series has "stilbamidine" led to agranulocytosis or thrombopenia [1]

During the treatment of kala-azar with "stilbamidine," a specific neuropathy consisting of dissociated anesthesia in the distribution of the trigeminal nerve has been frequently observed. This complication sets in one to three months after termination of the treatment with "stilbamidine." The trigeminal neuropathy occurs much more frequently in the treatment of multiple myeloma because the dosage of "stilbamidine" given is much higher than in kala-azar. Usually this neuropathy does not disturb the patients too much. However, in 1 case the facial numbness was accompanied by severe itching of the eyelids which harassed the patient considerably.

E. Results.—In approximately 80 per cent of the 35 patients mentioned, alleviation of pain was obtained. One patient who was treated in February 1945 has become completely asymptomatic and is still doing his daily work as a porter. Improvement of the roentgenologic appearance of the affected bones can be observed occasionally.[3] After the injections of "stilbamidine" are terminated roentgen treatment may be helpful to consolidate the results. Most of the remaining patients suffered relapses of pain within a year after the termination of treatment. Usually the relapses could be remedied, at least partly, by supplementary series of injections. Several patients have died in the course of the two years. As mentioned before, the disease is only temporarily halted. Bence-Jones proteinuria and increase of the serum globulin, if present before the treatment, continue unabated. The results obtained in 12 patients in whom treatment was started more than one year previously are shown in the table. Of these 12 patients 4 died. There are 8 survivors, 5 of whom are ambulant. Their condition may be designated as satisfactory. Five of the 8 survivors have now lived for periods of three to three and one-half years since the first sign of the disease developed; one has survived for six years.

Duration of Disease After Treatment with "Stilbamidine"

Name	Pains Started	Treatment	Bence-Jones Proteins	Abnormal Globulin	Formaldehyde Gel	Result	Condition, April 1948
1. J.G.	Jan. 1944	Feb. 1945	—	2.7	—	Excellent	Living and well.
2. E.W	July 1944	April 1945 June-July 1946 Sept. 1946 Mar. 1947	—	1.6	—	After every treatment pains abated	Condition poor.
3. J.M.		April-May 1946	++	1.9	—	Pains disappeared; died of myeloma of kidney	Died.
4. K.B.	April 1944	April 1946 Sept. 1946 Apr. 1947	++	2.7	—	After every treatment pains abated	Condition good.
5. J.M.		May 1946	++	5.6	++	Pains disappeared; died of thrombopenia	Died.
6. J.B.	Winter 1944	April-May 1946	—	5.3	++	Transverse lesion, cord; pains disappeared; died Dec. 1946	Died.
7. A.E.	July 1944	July 1946 Mar. 1947	—	2.9	—	After every treatment pains disappeared	Condition fair.
8. R.V.	Feb. 1946	July 1946	—	3.4	—	Pains disappeared; relapse April 1947	Condition good.
9. E.R.	Sept. 1945	July-Aug. 1946	—	3.7	+++	Pains disappeared	Condition favorable.
10. G.E.		July 1946	—	3.6	—	Pains disappeared; died of diabetic coma	Died.
11. H.C.	Jan. 1945	July 1946 Mar. 1947	++	7.7	++	After every treatment pains disappeared	Condition fair.
12. S.C.	Oct. 1941	July 1946 Jan. 1947	—	4.1	—to+	After every treatment* pains disappeared	Condition favorable.

*With "pentamidine" (4, 4'—[pentamethylenedioxy] dibenzamidine).

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From the Second Medical Service of the Mount Sinai Hospital.

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MORPHOLOGIC CHANGES IN THE MYELOMA CELLS

It has been reported that after treatment with "stilbamidine" basophilic inclusions develop in the myeloma cells.[4] It has been found that such changes develop after a total of 1,000 to 1,200 mg. of "stilbamidine" is injected.[5] After termination of the treatment with "stilbamidine" these inclusions persist for many months. The longest period during which these inclusions have been followed after the termination of treatment is eight months.

Histochemical examination has shown that these inclusions contain ribonucleic acid—the specific part of the nucleoprotein present in the cytoplasm of myeloma cells—and "stilbamidine." The presence of ribonucleic acid is indicated by the following three reactions.[6]

1. The inclusions stain deep blue with Wright stain and other Romanowski stains, deep red with pyronine and deep blue with toluidin blue.

2. Ribonuclease is a specific enzyme which depolymerizes ribonucleic acid. After ribonucleic acid has been exposed to ribonuclease, the ribonucleic acid does not take the stains mentioned. In bone marrow smears subjected to the influence of ribonuclease, the inclusions can no longer be visualized by Wright stain, pyronine or toluidin blue.

Lanthanum acetate precipitates ribonucleic acid and thus protects the latter against the action of ribonuclease. After the bone marrow smears have been immersed in lanthanum acetate the inclusion bodies can be stained easily, even after they have been exposed to the action of ribonuclease.

3. The inclusion bodies absorb ultraviolet light of 2,600 angstrom units, which is a characteristic of nucleoproteins.

The results of these three groups of tests indicate that considerable amounts of cytoplasmic nucleoprotein or of ribonucleic acid are present in the inclusions. In addition, these inclusions show two other characteristics, indicating the presence of "stilbamidine."

4. If studied under the fluorescence microscope the inclusions can be recognized by a vivid fluorescence.

5. Inclusion bodies can be demonstrated in photographs of bone marrow smears made with ultraviolet light of 3,300 angstrom units.

As "stilbamidine" is characterized by blue fluorescence and absorption of ultraviolet light of 3,300 angstrom units, the last two results[7] indicate the presence of "stilbamidine" in the inclusions.

It may therefore be considered as probable that the inclusions consist of a conjugation product of cytoplasmic nucleoprotein or ribonucleic acid and "stilbamidine."

A correlation exists between the intensity of the disturbance of the protein metabolism of patients with myeloma and the formation of these specific precipitates in the myeloma cells after "stilbamidine" injections.[5] In almost all patients with increased serum globulin injections of "stilbamidine" cause the formation of these inclusions. In about half the patients with Bence-Jones proteinuria but without increased serum globulin "stilbamidine" causes the formation of these inclusions. In patients without Bence-Jones proteinuria and without hyperglobulinemia the development of inclusions has never been observed up to the present time after injections of "stilbamidine."

COMMENT

Since these inclusion bodies are found only in myeloma cells and in none of the other bone marrow cells whether mature or immature, a special affinity seems to exist between "stilbamidine" and the nucleoproteins of myeloma cells—much more than between "stilbamidine" and the nucleoproteins of other cells. As a matter of fact, there is reason to believe that nucleoproteins of myeloma cells are different from the nucleoproteins of other cells. It is probable that nucleoproteins act as enzymes in the formation of proteins by cells. As myeloma cells manufacture abnormal proteins (Bence-Jones protein, abnormal globulins), it seems reasonable to surmise that the enzymes which form these abnormal proteins—that is, the nucleoproteins of the myeloma cells—are different from the nucleoproteins of other body cells. The fact that in patients with multiple myeloma with a severe disturbance of the protein metabolism the development of these inclusion bodies is more rapid and more intense than in patients with multiple myeloma without changes of the protein metabolism seems to favor this contention.

The demonstration and analysis of these inclusion bodies indicates that "stilbamidine" is fixed in the cytoplasm of myeloma cells in concentrations which are considerably larger than the quantities absorbed by other cells. In this way "stilbamidine" may be used in the future to introduce specific substances or specific energies into the cytoplasm of myeloma cells without damaging other cells.

Actually the action of "stilbamidine" in multiple myeloma may perhaps be compared with the influence of female sex hormone in patients with bone metastasis due to cancer of the prostate or with the action of male hormone in patients with bone metastasis due to mammary cancer. In all these instances pains often disappear, at least temporarily, but the disease progresses nevertheless. Occasionally a favorable result of longer duration is obtained.

SUMMARY

In 80 per cent of the cases of multiple myeloma the pains are at least partly relieved by intravenous or intramuscular injections of "stilbamidine" (4,4′—stilbenedicarboxamidine). The disease is at best halted temporarily; relapses are frequent, and Bence-Jones proteinuria and increase of globulin in the serum are not influenced.

The drug should be handled with care in patients who have impaired renal function, as is frequently the case in Bence-Jones proteinuria.

The drug has no deleterious influence either on hepatic function or on the peripheral blood picture.

In the majority of the cases a dissociated anesthesia of the trigeminal branches sets in several months after the termination of treatment. This anesthesia does not lead to dangerous complications, although occasionally disagreeable subjective complaints of itching of the eyes have occurred.

After treatment with "stilbamidine," a specific alteration of the cytoplasm of the myeloma cells is observed, consisting of the formation of precipitates of ribonucleic acid conjugated with "stilbamidine." It is probable that the nucleoproteins of the cytoplasm of the myeloma cells

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[7] Unpublished experiments.

are different from the nucleoproteins of any other cells in the body. "Stilbamidine" evidently has a specific affinity for these abnormal nucleoproteins of the myeloma cells.

CONCLUSIONS

Cervicobrachial pain can result from a variety of causes. The disability is often pronounced. From our experience it is believed that appropriate conservative management of these cases will relieve symptoms—and for an indefinite period—in the majority of patients.

ABSTRACT OF DISCUSSION

Dr. William Dameshek, Boston: It is an honor to discuss Dr. Snapper's paper. The work on multiple myeloma which Dr. Snapper has been doing for the last few years may be said to be brilliant. Together with others he has helped to inaugurate a chemotherapeutic era in the therapy of the proliferative disorders of the white cell-forming tissues. You have already heard about the effects of another chemical, namely, nitrogen mustard, which is of distinct value in Hodgkin's disease. "Stilbamidine" appears to be of at least some value in the treatment of multiple myeloma. Even though the results with this material may not be very good or may be of only temporary value, there can be no question that they represent a definite advance and a promise of things to come. The chief feature which Dr. Snapper has demonstrated is that one can alter the inner metabolism of a given abnormal cell by introducing into it a foreign substance of chemical origin. By this substitution of the relatively innocuous "stilbamidine" for the abnormal protein within the plasma cell some sort of beneficial change may ultimately take place, although the results thus far have not been spectacular. By demonstrating metabolic changes within the plasma cells by the most modern technics of histochemistry, Dr. Snapper has made a truly significant contribution. For a long time hematology was a relatively dead subject, dealing largely with morphology. Then it became physiologic and morphology was minimized. Now with such modern histochemical technics as described by Dr. Snapper, we are entering a new morphologic era in hematology. Dr. Snapper has had a remarkable career in several countries and in his years has investigated many different subjects. Wherever it was carried out, whether in Holland, China or this country, his work has cast light on many obscure phenomena. I am glad to welcome him into the field of hematology, which he has already enriched by his contribution to the physiology of the plasma cell.

DIAGNOSIS OF LESIONS OF THE UPPER PORTION OF THE URINARY TRACT

Fundamental Concepts

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The importance of the roentgen examination in urologic problems has become increasingly more evident. There are three methods in general use: the plain roentgenogram of the abdomen, retrograde pyelography and excretory urography. Usually two and often all three methods are necessary to establish and correlate the anatomic, physiologic and pathologic findings which confront the roentgenologist in the examination of the urinary tract.

In the plain roentgenogram of the abdomen one must be familiar with the normal anatomic structures; in the urinary tract, the kidneys are the only structures normally visible, and the degree of visibility is dependent on the amount of perirenal fat.

Retrograde pyelography was introduced [1] in 1906 and consisted of visualization of the pelvis and ureter by roentgenograms made after the introduction of contrast mediums into the ureter. In 1910 Uhle and Pfahler [2] first suggested the use of silver iodide. In 1915 Cameron [3] introduced sodium iodide as a contrast medium; the method then became safe and popular. It is now regarded as indispensable in the investigation of many urologic conditions.

Roundtree was able to visualize the urinary tract by means of large doses of sodium iodide injected intravenously. Later von Lichtenberg [4] and Swick [5] discovered a substance which was nontoxic. After this many advances in excretory urography took place. The preparation of the patient is the same as for other methods of examination of the genitourinary tract. A flat roentgenogram of the abdomen should always be made before the injection of the dye, and after the injection roentgenograms should be made at eight, twenty-five and sixty minutes or variations thereof, depending on the condition under consideration and the individual patient.

Visualization of the urinary tract by this method is dependent on the functional activity of the kidneys in excreting a chemical substance in which is incorporated iodine to render the material opaque to the roentgen ray during its passage through the urinary tract. Pritchard [6] expressed the opinion that the amount of dye should be measured in grams of iodine rather than cubic centimeters of dye and that the amount injected should be proportionate to the patient's weight, age and concentrating power. Children up to puberty can handle twice as much iodine per weight proportion as adults, and infants three times as much. The poorer the patient's concentrating power the more iodine he must have to produce satisfactory urograms.

Intravenous urography is relatively harmless. Aside from the inconvenience of missing breakfast, overnight dehydration and possible transitory pain in the arm, the patient is undamaged and may return to work in ninety minutes. However, a word of caution: All of these dyes contain iodine and in a sensitive patient may lead to serious complications. Various types of sensitivity tests have been devised. Our prophylactic measure is to inject less than 1 cc. intravenously and wait for from one to two minutes before injecting the remainder of the dye. One should always have available an ampule of epinephrine in case of an untoward reaction, and in addition oxygen should be at hand in case of pulmonary edema.

The information gained from excretory urography is chiefly physiologic,[7] and the method gives definite and valuable information of the functional activity of the

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From the Research Clinic, Kansas City, Mo.

Read before the Section on Radiology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

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kidneys. The normal kidney should excrete the dye [8] rather promptly, and this is the purpose of the roentgenogram made at the eight minute interval. The appearance time of the dye in the urinary tract is a good index of renal function. The maximum visualization will usually be obtained between fifteen and twenty-five minutes. Poor visualization means impaired renal function, and the degree of impairment is indicated by the degree of visualization; when poor visualization is obtained the examination should be continued beyond the sixty minute period, as it is often advantageous to take roentgenograms at two and four hour intervals after the injection. Observance of this rule will often save an examination that would be almost valueless if stopped at an earlier interval. Nonvisualization may indicate: (1) pronounced impairment of renal function; (2) temporary inhibition of renal function; (3) permanent loss of renal function; (4) congenital or acquired absence of a kidney.

In the interpretation of the anatomic, physiologic and pathologic findings from an examination of the upper portion of the urinary tract we have divided the lesions into: (1) congenital anomalies, (2) inflammatory involvement and (3) neoplastic lesions.

CONGENITAL ANOMALIES

Congenital abnormalities of the urinary tract are legion, and our knowledge concerning them has been greatly increased by excretory urography. The most common ones are: (1) congenital malposition [9] (ectopic kidney), (2) horseshoe kidney,[10] (3) duplications of pelves and ureters, (4) solitary pelvic kidney, (5) congenital dilatation of the pelvis and ureters and (6) congenital cystic disease of the kidney.

Lowsley [11] has discussed the correction of some of nature's mistakes by operative intervention. In horseshoe kidneys the ureters usually enter the renal pelvis higher than in nonfused organs. Anomalous blood vessels are almost always present. Normal rotation of the kidneys on their vertical axes is prevented by fusion, and hydronephrosis in these kidneys is probably the direct result of interference with normal drainage. The genesis and relation [12] of anomalies of the kidney [13] can be explained on the basis of embryology.

Congenital [14] cystic disease of the kidney is a condition of considerable interest and clinical importance. Clinically it may present itself in a variety of ways. Evidence of infection of the urinary tract is probably the most common and hematuria may be the initial symptom. Not infrequently the finding of bilateral enlargement of the kidney may be the first indication. The exact origin of this disease is not definitely understood, but it is believed to be due to an imperfect union of the tubules of the kidney with the pelvis. It is frequently accompanied by congenital lesions in various parts of the body. In the roentgen examination there is an enlargement of the kidneys, and the condition is bilateral. The diagnosis is dependent on the visualization of the urinary tract. The pelvis is usually enlarged, stretched and elongated, and the pelves and calices may show evidence of pressure defects from the multiple cysts in the kidney. These defects are characteristic in shape, conforming to the rounded contour of the cyst.

Congenital solitary pelvic kidney is a rare renal anomaly.[15] Some interesting theories have been proposed to explain the etiological factors in renal ectopia and agenesis. Most authors report that common occurrence of genital anomalies which prove a close relation of in the development of müllerian and wolffian ducts. This demonstrates the importance of complete pyelographic information in all cases of genital malformation.

INFLAMMATORY INVOLVEMENT

Inflammatory changes in the upper portion of the urinary tract are usually the result of bacterial infection. While many organisms are capable of producing such infection, none produce roentgen changes that are characteristic with the exception of the tubercle bacillus. A lesion of the kidney which may or may not involve the pelvis is a perinephritic abscess. Prehn[16] called attention to rotation of a calix as a pyelographic sign in the diagnosis of perinephritic abscess. Fever is probably the most common symptom. Pain comes next and is usually localized to the loin. The following roentgen signs are definitely helpful: (1) obliteration of the lateral border of the psoas muscle; (2) obliteration of the kidney shadow; (3) curvature of the spine with convexity, away from the abscess; (4) displacement of the colon; (5) displacement, fixation and limitation of the diaphragm; (6) renal fixation; (7) anterior and outward displacement of the kidney, and (8) rotation of the calix in the upper pole of the pyelogram.

Tuberculosis [17] is the only infection of the urinary tract that produces changes sufficiently characteristic to enable one to recognize the etiologic factor involved. On the plain roentgenogram irregular areas of calcification [18] are suggestive of renal tuberculosis. The early changes are best demonstrated by retrograde pyelography. As the disease progresses the entire pelvis becomes involved. Infection shows a predilection for the renal papillae and in these areas caseation occurs, followed by necrosis. In the pyelogram these areas fill with the contrast medium and appear as small irregular defects just beyond the calix. These are known as areas of cortical necrosis and are characteristic of tuberculosis.

Renal carbuncle [19] is a localized massive suppuration within the kidney due to bacterial metastasis. The symptoms are those of infection, malaise, chills and sweats. Urinary disturbances are usually absent. The plain roentgenogram of the abdomen gives no information. Excretory urography fails to reveal any abnormality. Retrograde studies [20] may show destruction or distortion of a single calix.

Next to infection, hydronephrosis is the most frequent lesion in the upper portion of the urinary tract and may be due to a simple mechanical obstruction, as aberrant vessels, bands of adhesions or to inflammatory changes as the result of infection. One may see on the flat roentgenogram of the abdomen some enlargement of the renal shadow. Excretory urography usually shows some

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impairment of function, and the retrograde reveals varying degrees of dilatation. The earliest change found on the roentgenogram is a loss of detail in the outline of the minor calices with a slight broadening of the major calices and some fulness of the true pelvis. As the disease progresses there may be a complete loss of the minor calices and a blunting or club-shaped appearance to the major calices.

The size of the renal pelvis[21] is less important than determination of its emptying time. It has been suggested that serial pyelograms be taken at three minute intervals to judge the time necessary for the pelvis to rid itself of injected medium. Frequently, sufficient information can be determined to prove poor drainage from the pelvis by taking a ten minute delayed roentgenogram after the pyelogram has been completed. One must remember that dilatation of the upper portion of the urinary tract is an invariable accompaniment of pregnancy.

NEOPLASTIC LESIONS

Intrarenal lesions may be benign or malignant and are characterized by deformity or distortion of the renal pelvis or calices. The location of the lesion may indicate the type of deformity or distortion which is observed. The changes in the pelvic shadow[22] resulting from either benign or malignant lesions may compress, displace and elongate the pelvis and the adjacent calices. They may encroach on or actually invade the pelvis, destroying its normal outline, producing broadening of the calices, pyelectasis and deformity at the ureteral junction.

Benign tumors often explain an irregularity in outline of the renal shadow and may be the cause of a continued and pronounced hematuria. The diagnosis of angioma[23] of the kidney may be suspected when hematuria and a filling defect in the pyelogram occur in a subject under 40. Absence of a tumor mass or roentgen evidence of renal enlargement tends to support this suspicion. Angiomas may be located in any part of the kidney. Hematuria,[24] in the absence of renal tuberculosis, urinary calculus, infection of the urinary tract and urographic evidence of malignant tumors is suggestive of angioma.

Solitary cysts of the kidney were formerly regarded as rare,[25] but since the advent of urography are found much more frequently. Three groups have been demonstrated urographically: (1) whether the cyst is connected or (2) not connected with the calix or the renal pelvis or (3) lies outside of the renal structure.

The flat roentgenogram of the abdomen, excretory urography and retrograde pyelography constitute the principal means of recognizing cysts[22] of the kidney. They may be single or multiple. If the cyst is small and does not encroach on the calices or the renal pelvis, the pyelogram will be normal, but if it is of sufficient size to bulge into the renal pelvis, a filling defect will be seen. When it involves the lower pole, it may cause hydronephrosis. If the cyst arises from the mesial border of the kidney, the calices may remain normal but the adjacent portion of the pelvis becomes flattened under compressive action of the cyst with changes in position of the axis of the kidney, inward displacement of the ureter and displacement and rotation of the renal pelvis; one may also visualize the cyst shadow or there may be calcification in the cyst wall. The solitary cyst does not produce symptoms except by mechanical pressure, and when this is big enough there will be displacement and compression of the renal pelvis and calices.

Adenomas are frequently associated with cysts. Their incidence increases with each decade past middle life. Adenoma and carcinoma[26] are similar in many respects. They occur at approximately the same age, grow slowly and are found together more often than adenomas are found alone. They are rarely bilateral. The cells deviate from normal renal cells in the direction of malignant characteristics. When the adenoma becomes malignant, a fairly well circumscribed, diffusely infiltrating neoplasm of considerable size may result. The clinical manifestations are: pain, hematuria and tumor. The abnormalities noted in the pyelogram are dependent on the location, size and rate of growth and whether or not the pelvis is involved.

The most common renal tumors in adults are cortical hypernephroid[27] carcinomas. In the young[28] mixed carcinomas, usually called Wilm's tumor predominate. The smaller lesions of hypernephroma have a tendency to be encapsulated. The larger ones show little evidence of encapsulation and may infiltrate into the renal pelvis. One of the striking features of hypernephromas is their tendency to invade the branches of the renal vein.[29]

Carcinoma of the kidney may be considered under two groups: (1) those arising from tubular or glandular epithelium and (2) those arising from the pelvic mucosa. Undoubtedly the most important source of carcinoma in the substance of the kidney in the adult is the adenoma.

Carcinomas arising in the renal pelvis[30] are of two types, papillomatous and epidermoid.

Papillomatous growths of the renal pelvis are similar to papillomas elsewhere[31] and have a tendency to become malignant. The tumor may be limited to a calix or it may fill the entire pelvis. Hematuria is almost a constant clinical finding. Chute[32] reported that in 100 proved cases in 44 per cent of those with hematuria there was cancer of the genitourinary tract, and Kretchmer[33] in 833 cases found that 39 per cent were due to lesions of the kidney.

Tumors arising in the pelvic mucosa but growing into the renal substance rather than into the lumen of the pelvis have the structure of inverted papilloma.[34] Such tumors are referred to as epidermoid carcinoma. They may arise from the pelvis of the kidney, are ulcerative lesions and infiltrate the renal substance, and their usual mode of metastasis is through the lymphatics. Carcinoma of the kidney, like carcinoma elsewhere, has a tendency to invade the surrounding structures and in the pyelogram shows little tendency to displace the calices or the

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pelvis of the kidney but does produce irregularity in the pelvic outline with serrated edges indicating invasion. Ackerman[35] described a case of mucinous adenocarcinoma of the pelvis of the kidney in a patient with infection and stones. Hunner[36] stated that cancer of the kidney is often associated with ureteral stricture and that in preliminary diagnostic routine every kidney which is a source of bleeding should be considered cancerous until reasonable proof to the contrary is established.

Sarcoma, in the sense of a malignant tumor arising from the supporting tissue of the kidney, is rarely observed as a primary lesion. It is more probable that a large percentage of cases appearing in the literature under the heading of sarcoma should be classified as embryonal carcinoma or a mixed tumor. Fish and McLaughlin[37] reported a case of lymphosarcoma with the syndrome of recurring abdominal pain, fever and anemia.

Many conditions give rise to tumors in the region of the kidney and on palpation may be mistaken for an enlarged kidney. A palpable mass[38] usually presents a problem in diagnosis. An enlarged spleen, Riedel's lobe of the liver, retroperitoneal cysts, tumors of the descending colon and sigmoid, pancreatic lesions, lymph nodes, mesenteric cysts and tumors arising from the disease of the female adnexa may simulate renal masses. A gastrointestinal examination is a necessity. A shadow on the roentgenogram apart from that of the kidney would be conclusive. Any displacement of the ureter is suggestive of renal tumor, although extrinsic lesions may cause this displacement. An extra renal tumor may deform the pelvis by pressure, while a tumor in the pelvis may not change the contour or outline until it is large enough to produce obstruction.

Shambaugh,[39] reporting on 24 extrarenal masses in the left flank, stated that in 16 instances the left kidney was in a normal position. The extrarenal mass in 1 instance proved to be intraperitoneal, and in the other 15 there was splenomegaly. In 8 cases the left kidney was definitely dislocated; in 6 the mass was due to retroperitoneal tumor, in 3 to malignant lyphomas and in 1 each to neurofibrosarcoma, benign fibroma and a pancreatic cystadenoma. He emphasized that a mass found in the left flank causing displacement of the left kidney will invariably prove to be extraperitoneal.

Many tumors containing ganglionic cells[40] have often been described as arising in the retroperitoneal area. These are as a rule benign tumors, but a few have shown metastasis which seems to have developed from the smaller and less differentiated cells. Lipomatous tumors[41] are characteristic but not frequent growths of the retroperitoneal space. Freifeld[42] has described a lymphoblastoma of the kidney which produced a filling defect in the pyelogram resembling a parenchymal lesion.

CONCLUSION

The ambition of most radiologists is to determine the type of renal tumor with which they are dealing. This of course would be ideal, but a glance at the great mass of controversial literature on the classification of benign and malignant lesions makes it difficult. The importance of a complete roentgen examination has been stressed. The methods used have been discussed and the findings correlated under anatomic, physiologic and pathologic conditions.

ABSTRACT OF DISCUSSION

Dr. H. Dabney Kerr, Iowa City, Iowa: In the short time at the disposal of Dr. Lockwood, it was impossible for him to go deeply into the diagnosis of renal lesions. In the differential diagnosis of renal tumors one must not attempt to make clearcut differential diagnosis between cysts and neoplasms, because many renal cysts will, after they have been removed, show carcinoma on their interiors. In giving intravenous "dye" for intravenous pyelography, it is important to remember that the absence of visualization of the renal pelvis does not necessarily mean impaired function. That was brought out by Dr. Lockwood but probably not with sufficient emphasis. It has been recently demonstrated by Barclay and his associates that there is a lesser circulation in the kidney which acts as a protective mechanism and which may, therefore, in many instances cause lack of visualization of the renal pelvis when there is actually no pathologic condition in the kidney itself. That one must keep in mind. There is a point which I think perhaps is an advantage in the examination of the kidney and one which my associates and I use, not routinely, but in selected cases, and that is the air pyelogram. When one has a nonopaque stone in the renal pelvis or when one is dealing with a small papillary tumor one may cover it up with the opaque medium, but with air pyelography one can demonstrate nonopaque stones and papillary carcinomas or even cellular debris which may have given rise to some bleeding or pain.

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INJECTION THERAPY FOR ANGIOMAS

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Angiomas are tumors of endothelial origin and rarely are they malignant. The neoplastic process arises in buds of endothelial tissue which may grow extensively but do not seem to connect with normal vessels in the surrounding tissue. But one afferent and efferent channel is ascribed to the angioma, and occlusion of either should eventuate in regression of the lesion.

TYPES OF LESIONS

Excepting nevus flammeus ("port wine stain"), a large majority of hemangiomas will spontaneously involute at a relatively early age, but therapy is frequently warranted. This applies to both the superficial ("strawberry mark") and deep ("cavernous") hemangiomas, which two varieties are most commonly observed and frequently occur in combination. Nevus flammeus, nevus araneus (stellate or "spider" angioma), senile angiomas, lymphangiomas and more rare forms are not included in this discussion.

INDICATIONS FOR THERAPY

Most strawberry and cavernous angiomas are either present at birth or appear within the first few months of life. Thereafter they may increase in size only in proportion to the growth of the infant, or independent enlargement may progress for a period of some months. Continued growth of angiomas beyond the age of 1 year is unusual but can occur. In view of the pronounced tendency to spontaneous regression of most

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hemangiomas by the age of 5 to 6 years, some criteria should be established for those deserving treatment. Lesions which interfere with vision, those situated within or about the mouth or in the anogenital region and on pressure areas warrant first consideration. They may impede normal functions or give rise to painful ulceration and perhaps secondary infection of importance. Large angiomas are particularly prone to ulcerate, unless of purely cavernous structure, and regardless of their location. The scars which may then ensue can be disfiguring and of psychologic import in later life. The infrequent lesion which persists all through childhood or into adult life is of the same significance.

It is seldom that hemangiomas give rise to important hemorrhage, interfere with growth or endanger life, except in muscular, visceral or osseous lesions which are not under consideration here.

By far the greatest number of infants are brought for attention by mothers who seek removal of their child's blemish for cosmetic reasons. If none of the aforementioned indications exist and the lesion is not rapidly enlarging, the probability of spontaneous disappearance should be explained. Therapy may still be requested in many instances and is justified if safe and effective.

METHODS OF TREATMENT

Injection therapy for angiomas is not new nor necessarily the best in all cases, but it is simple, efficient, and nonhazardous and has received less emphasis than it deserves. It compares most favorably with other modalities.

Excision is the quickest cure for selected lesions and the results are usually satisfactory. Large angiomas seldom lend themselves to suitable surgical approach, and many small ones are so situated as to make excision unattractive. Surgeons frequently are most reluctant to attack difficult angiomas unless other methods fail. Sclerosing injections and a few months' time, however, often provide a more workable problem for surgical treatment.

Radiation therapy is perhaps the most widely employed method of treating angiomas at the present time. It is effective to a large degree when properly used but carries some hazards and has distinct limitations. Roentgen rays and radium are not generally advised after the age of 2 years. Radium treatments are time consuming and expensive, and require meticulous care. Roentgen therapy is hardly less difficult to administer. Either form of radiation should be avoided on the scalp, around the eyes, lips, genitalia and breasts and over digits, bony prominences or epiphyses; radiation effects on underlying structured must always be considered. It is not generally advisable for extensive lesions anywhere. External radiation, the implantation of radium needles and interstitial radon seed therapy have all been successfully employed but require skill and experience to avoid late radiation sequelae.

Solid carbon dioxide is also used extensively in treating hemangiomas. With sufficient experience, one can develop a technic of application that will briefly freeze a shallow strawberry angioma and speed its involution. It requires skill to accomplish results without the production of scarring. In cavernous angiomas or the mixed strawberry and cavernous types, however, it is extremely difficult if at all possible to achieve any suitable effects without scars.

Surgical diathermy of various types may be employed for special situations, but here again scarring is unavoidable.

PRESENT SERIES

A group of 233 patients with 310 assorted vascular tumors comprised the series under observation. These cases consisted of the following types: Hemangioma 206; nevus flammeus 16; lymphangioma 5, and granuloma pyogenicum 6. Only the 206 patients with hemangiomas will be discussed herein. Table 1 provides the statistical data regarding the ages of the patients and the onset of the 283 lesions presented by these cases.

TABLE 1.—*Two Hundred and Six Patients with 283 Hemangiomas*

Ages of Patients (Years)	
Under 1	128
1 to 5	39
6 to 10	7
11 to 20	4
21 to 40	12
41 to 60	7
Over 60	9
Total	206
Age at Onset of Lesion	
Present at birth	191
Occurred by 3 mo.	61
At 4 mo. to 1 yr.	5
At 1 to 10 yr.	3
At 11 to 20 yr.	3
At 21 to 40 yr.	2
After age 40	18
Total	283

Multiple angiomas occurred in 55 of the 206 patients (26.7 per cent). The duration of lesions was largely a matter of a few weeks to several months, since the great majority of patients were but infants of a few months' age, or small children. There were 18 cases, however, in which angiomas had been present at birth or from early weeks of life until later years; 1 patient was over 70 years old. These angiomas included 5 persisting from ten to twenty years, 10 remaining to the ages of 21 to 40 and 3 for more than sixty years.

Hemangiomas were known to have occurred in other members of the family in 22 cases. Another of the immediate family group was affected in 15 instances, a more distant relative in 4 cases and 3 patients had both near and far kin with angiomas. A homozygous twin was without lesions in 1 case and a heterozygous twin was unaffected in another instance.

Six patients with angiomas present at birth and persisting for some years had noted growth of their lesions only after periods of three to twenty years. Three women had observed distinct growth of their lesions during pregnancy; 1 noted this phenomenon twice. Trauma was thought to be associated with enlargement in 1 case of this group and also in 4 cases in which angiomas developed later in life.

There was no consistent association of hemangiomas with other tumors or with any given type of disease. Eight patients were afflicted with atopic dermatitis; 2 gave a history of convulsions (not epileptiform); 1 had celiac disease. Five patients had been born prematurely.

The types of hemangiomas encountered in the 206 patients and the locations of their 283 lesions are given in table 2. The strawberry and cavernous lesions were about equal in number, although strawberry elements were also mixed with more than half of the deeper lesions and thus entered into over three fourths of the total. Twenty strawberry marks displayed mature-appearing veins radiating out from the periphery; five were associated with changes of the port wine type.

A word of explanation is due for the senile type of cavernous angiomas. These lesions are not the ruby red, superficial, usually small and frequently multiple angiomas so often observed on the aging integument. They are rather a sharply contrasting type of dark bluish, domed, cavernous tumor more often found about the head than elsewhere. The 18 lesions in this series occurred in 13 patients whose average age at onset was 57 years; the mean duration of their lesions was five years and two months. These eighteen senile cavernous angiomas were found on the face in 6 instances, on the mucous membrane of the lip, tongue or mouth 11 times and once on a thigh.

TABLE 2.—*Two Hundred and Six Patients with 283 Hemangiomas*

Types of Lesions		
Strawberry hemangiomas		140
Cavernous hemangiomas		
Cavernous element only	45	
Cavernous and strawberry	80	
Cavernous of senile type	18	143
Total		283
Sites of Lesions		
Scalp		34
Face		
Forehead and cheeks	45	
Eyelids	18	
Nose	8	
Ears	3	
Lips (cutaneous)	5	79
Neck		8
Arms		24
Hands		6
Trunk		79
Legs,		22
Feet		2
Mouth		
Lips (mucous membrane)	7	
Gingiva	2	
Tongue	8	
Palate	1	
Buccal	5	23
Anogenital		6
Total		283

When the 283 hemangiomas were segregated in accordance with size, their longest diameters were as follows: up to 1 cm., 73 lesions; from 1.1 to 3 cm., 133; from 3.1 to 5 cm., 45; from 5.1 to 10 cm., 19, and over 10 cm., 13. The largest of all was in a clinic patient aged 37 years; this lesion consisted of practically continuous angiomatous changes affecting nearly all of one lateral half of the trunk and the posterolateral aspect of the corresponding thigh. She had first been observed at the age of 5 years, at which time the involved skin was completely covered with a mixed profusion of strawberry and port wine marks plus many underlying cavernous angiomas, all of the abnormalities having been present since birth. When she was called in for examination at the age of 37, all of the cavernous portions had disappeared and many of the strawberry marks were gone; all of the nevus flammeus element remained unaltered according to descriptions in the record and the patient's statement. No therapy had been administered. This case was a perfect example of the so-called neurocutaneous syndrome, but no neurologic aberrations were demonstrable. Two private patients presented the next largest areas of involvement; both were infants under 3 months of age. One lesion included an entire side of the head and neck, extending below the clavicle inferiorly and half obliterating the curve of the neck laterally; the other reached from the base of the neck across the shoulder and throughout the upper extremity to the fingertips, including all aspects. Both had combined cavernous and strawberry elements.

Ulceration had taken place prior to treatment in 27 of the strawberry angiomas and in 22 of the mixed cavernous and strawberry lesions. No purely cavernous hemangiomas broke down at any time. Among the 49 lesions which had ulcerated, 15 involved episodes of hemorrhage; 6 of these were in the mouth or on the lips and 5 were in the anogenital region.

Previous therapy had been administered for 60 of the 283 angiomas reported herein, as delineated in table 3. The results of prior treatment are obviously no indication of the usual efficiency of those methods employed, since the successfully treated patients would not seek further attention. Nevertheless the failures illustrate some of the disadvantages of these modalities. One surgical failure was so classified because of keloid formation. Three lesions treated with roentgen rays and 2 treated with radium revealed irradiation sequelae in the form of atrophic scars with telangiectasia and pigmentation. Seven of the 9 lesions in which carbon dioxide treatment was a failure were *conspicuously* scarred, and the other 2 had been dormant lesions until frozen and then began to grow. All of the lesions treated with coagulation and cautery were notably scarred. In the 2 lesions in which injection had failed inadequate sclerosing therapy had been administered some years earlier and had been abandoned prematurely.

TABLE 3.—*Sixty Angiomas Treated Prior to Observation*

Type of Therapy	Successful	Failure
Surgical	4	8
Roentgen ray	2	11
Radium	3	8
Solid CO_2	3	9
Surgical diathermy:		
Coagulation —7		
Cautery —3	—	10
Sclerosing injections	—	2
	12	48
Total		60

RESULTS OF INJECTION THERAPY

There was no selection whatever of the lesions to be treated by sclerosing solutions. In many instances therapy was requested even after the patient or the mother had been advised that no attention was necessary. A small group was left untreated because of previous measures that were obviously going to become successful or because of accepted advice that therapy was not essential. Table 4 shows the division of the series by treatment cases, observation cases, those lost, and the length of follow-up. No patient was considered adequately observed unless the follow-up period was six months or longer, even though progress seemed satisfactory; those in the latter category were arbitrarily classed as lost along with those who actually disappeared

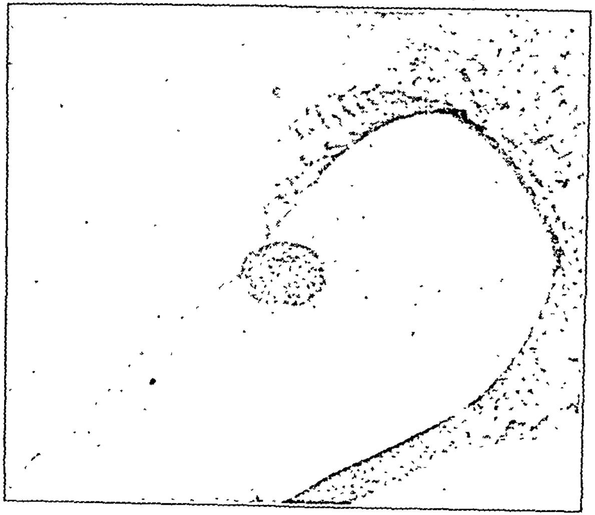

Fig. 1.—T. M. aged 5 months. Showing strawberry hemangioma 1.8 in. in diameter. Eight injections were given in six months.

from observation too soon. The longest period of follow-up was eight years and three months (two patients with two angiomas apiece).

TABLE 4.--*Two Hundred and Six Patients with 283 Hemangiomas*

Sclerosing injections	146	190
No therapy	37	67
Lost to follow-up........	23	26
Total	206	283

Average Time Followed
34.8 mo. per patient
and
35.8 mo. per lesion

In calculating the effects of treatment, an arbitrary estimation of relative success was followed. A good result was defined as 75 per cent reduction in size within one year or complete disappearance of the tumor by the end of observation, and with no more than insignificant scarring. A fair result was 50 per cent decrease in one year, or 75 per cent in two years, or noticeable scars except in strawberry marks over 5 cm. in size. Poor results were 25 per cent resolution in one year, or not over 50 per cent during the time followed, or scars in small lesions. Any lesion less responsive was a failure. Changes in color were largely ignored in estimating the effectiveness of sclerosing injections. The rate of fading was so irregular as to preclude reasonable categories of results of therapy. In many instances the color remained for considerable periods of time after lesions were otherwise obliterated; a halo of irregular blotches was not infrequently visible for many months at the periphery of an otherwise completely resolved strawberry mark.

TABLE 5.—*Effectiveness of Sclerosing Injections in* 190 *Hemangiomas* (164 *Patients*)

	Results Correlated with Age of Patient				Results Correlated with Duration of Lesion			
	Good	Fair	Poor	Failed	Good	Fair	Poor	Failed
1 to 5 mo.	70	20	2	—	69	19	1	—
6 to 11 mo.	26	17	1	—	21	16	1	—
1. to 5 yr.	13	3	1	1	26	8	3	2
6 to 20 yr.	4	3	5	1	5	5	4	1
Over 20 yr.	9	6	2	6	1	1	2	5
Subtotals	122	49	11	8	122	49	11	8
	Total............190				Total............190			

A satisfactory outcome was obtained in 90 per cent of the lesions treated by injection; 64 per cent were classed as good and 26 per cent as a fair effect. A poor issue ensued in 6 per cent; only 4 per cent were failures. The results of injection therapy in the 190 treated angiomas were determined from various aspects. Its effectiveness according to the age of the patient, the duration of the lesion, and the location, size and type of hemangioma are portrayed in tables 5, 6 and 7. It is at once evident from these tables that the results are more satisfactory when treatment is instituted in the first few months of life. The same is also seen to be true when therapy is utilized in lesions of short duration, regardless of the patient's age. It is apparent that the size of a hemangioma is of some prognostic import, since the larger lesions were progressively poorer in response. In regard to types of tumors, mixed strawberry and cavernous lesions gave the least satisfactory results and all varieties of cavernous angiomas fared worse than the simple strawberry marks. The location of the tumor appeared to have the greatest significance, since the largest number of poor results and all of the failures occurred on the face or in the mouth. An unsatisfactory outcome occurred in 16 per cent of face lesions and 26 per cent of those in the mouth.

TABLE 6.--*Effectiveness of Sclerosing Injections in* 190 *Hemangiomas (*164 *Patients)*

Results Correlated with Site of Lesion	Good	Fair	Poor	Failed
Scalp	15	8	—	—
Face	34	22	5	6
Neck	3	2	—	—
Arms	13	2	1	—
Hands	1	1	1	—
Trunk	36	6	—	—
Legs	4	1	—	—
Feet	—	—	—	—
Mouth	11	6	4	2
Anogenital	5	1	—	—
Subtotals	122	49	11	8
Total				190

Face:	Good	Fair	Poor	Failed
Forehead and cheeks	16	14	3	2
Eyelids	11	5	1	1
Nose	5	1	—	—
Ears	1	1	—	1
Lips (cutaneous)	1	1	1	2
	34	22	5	6

Mouth:	Good	Fair	Poor	Failed
Lips (mucous membrane)	4	2	—	1
Gingiva	—	—	2	—
Tongue	4	2	1	1
Palate	—	—	1	—
Buccal	3	2	—	—
	11	6	4	2

TABLE 7.--*Effectiveness of Sclerosing Injections in* 190 *Hemangiomas (*164 *Patients)*

Results Correlated with Size of Lesion	Good	Fair	Poor	Failed
Up to 1 cm.	36	9	1	—
1.1 to 3 cm.	54	29	4	4
3.1 to 5 cm.	19	7	2	2
5.1 to 10 cm.	7	3	2	1
Over 10 cm.	6	1	2	1
Subtotals	122	49	11	8
Total				190

Results Correlated with Type of Lesion	Good	Fair	Poor	Failed
Strawberry	60	15	1	—
Cavernous				
Cavernous only	17	8	5	2
Mixed	37	22	5	5
Senile	8	4	—	1
Subtotals	122	49	11	8
Total				190

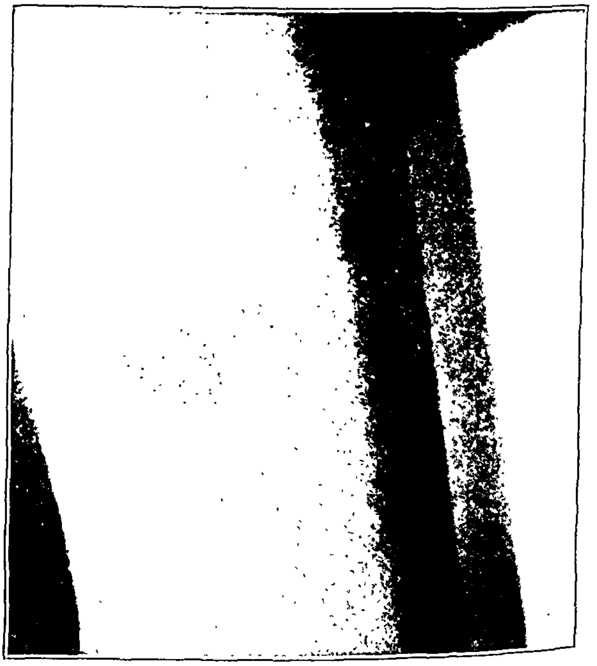

Fig. 2.—T. M., two years after treatment.

The 8 instances of failure were all cases with a background of mitigating circumstances. One patient was aged 2½ years, one was 6 years old and the rest were between 21 and 71 years of age. Six lesions had been present at birth; 1 appeared at the age of 3 months and one at 48 years of age. The last had been present for five years when observed; the duration of the other seven corresponded approximately to the ages of the patients. The locations, sizes and types of these angiomas are shown in the tables. Five patients had previously failed to benefit from other therapy, including cautery, roentgen ray, radium and surgery (2 cases). In another, roentgen rays failed after unsuccessful use of sclerosing injections. One lesion was complicated by a keloid from earlier surgical procedures. Two women had small dormant angiomas until the advent of pregnancy.

TABLE 8.--*Time Required for Injection Therapy in 190 Hemangiomas*

Duration of Lesion	Months of Therapy			
	6 or less	7-12	13-24	Over 24
1 to 5 mo.	42	32	12	3
6 to 11 mo.	20	13	5	—
1 to 5 yr.	17	15	5	2
6 to 20 yr.	4	5	3	3
Over 20 yr.	2	3	2	2
Subtotals	85	68	27	10
Total				190

Type of Lesion	Months of Therapy			
	6 or less	7-12	13-24	Over 24
Strawberry	51	20	4	1
Cavernous				
Cavernous only	10	10	6	6
Mixed	23	26	14	6
Senile	11	2	—	—
Subtotals	95	58	24	13
Total				190

The amount of injection therapy required for effective results and the length of time involved could be analyzed from various points of view. The average number of treatments per lesion for all angiomas, regardless of result, was 8.24 injections. This therapy required an average time of 8.34 months. The greatest number of injections given any one lesion was 39; the same case involved the longest elapsed time, or sixty-six months. The patient was a woman aged 39 with a cavernous hemangioma of the lower two thirds of one side of the face since birth; the result was good. The maximum amount of sclerosing solution injected into any patient at one treatment was 10 cc. Table 8 illustrates the time factor in accordance with the duration and type of lesions. This clearly demonstrates the quicker response of angiomas which were of less than a year in duration. It is known that a spontaneous resolution occurs in many hemangiomas within a relatively short period of years. One might thus assume that waiting for five years would bring about a quicker response when therapy was instituted. On the contrary, table 8 indicates that angiomas involute less rapidly when treated after the duration has passed one year, and progressively slower with increased age of lesions.

It is also demonstrated that the senile cavernous angiomas sclerose far more quickly with injections than any other variety of angioma. None had been previously treated. Results with sclerosing injections were predominantly satisfactory despite the fact that all of the senile lesions so treated were situated on the face or in the mouth, where the poorest average results obtained. This circumstance is most fortunate, since senile cavernous angiomas are not appreciably responsive to radiation and are often ill suited to other means of treatment.

When results of therapy with sclerosing solutions were analyzed in accordance with the number of treatments given, by duration and type of lesion, the findings were in close agreement with table 8. This might be expected, since the average number of injections and average months of therapy were essentially the same. The amount of treatment necessary for angiomas on assorted sites and for large or small lesions did not seem to vary significantly. Thus while location and size were of prognostic import, the duration of the tumor and its type were of more influence in regard to quantity of sclerosing injections required. The end results were not in evidence at the termination of therapy in most instances. (Indications for stopping injections are given later in this paper.) The 190 treated lesions achieved their maximum results after therapy as follows: 34 within three months; 76 in six months; 46 at twelve months; 24 at 24 months, and 10 later than twenty four months. Only the type of lesion seemed of significance in this respect. Senile cavernous angiomas were notably the quickest to respond. Strawberry marks, while requiring less average time(and quantity) of therapy than mixed or purely cavernous angiomas, were not appreciably faster in attaining satisfactory effects.

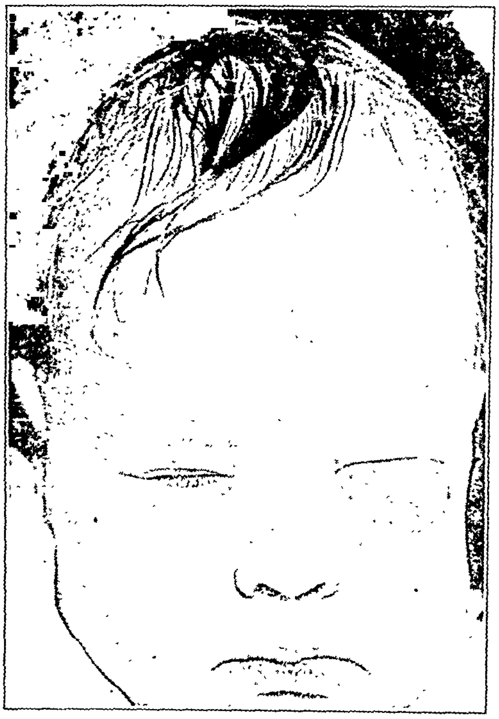

Fig. 3. P.G., aged 3 months. Showing cavernous agnioma 2.5 cm. in diameter. Fourteen injections were given in twelve months.

This paper is concerned primarily with hemangiomas, but it may be said in passing that lymphangiomas have not responded well to sclerosing injections. Five of the 6 patients observed received injections, but their lymphangiomas did not sclerose satisfactorily.

The 6 instances of granuloma pyogenicum, however, did exceedingly well. Four patients were most promptly relieved of their lesion after one injection.

SOLUTIONS EMPLOYED

A solution of quinine and urethane was perhaps in most wide usage just prior to the period of time encompassed by the group of cases reported herein, but none of them were treated with it. This agent was not utilized because a number of patients had been observed whose varicose veins were sclerosed with quinine and urethane, and in whom a sensitization dermatitis developed. Sodium morrhuate (5 per cent) was employed at the beginning of this series but soon abandoned because of reactions. Other sclerosing solutions subsequently utilized and their effectiveness are outlined in table 9. When these results were calculated in percentages there was too little difference among the three agents employed to be of notable significance.

Table 9.—*Results According to Agent Used in Sclerosing Injections* (190 *Hemangiomas*)

Solutions	Results Good	 Fair	 Poor	 Failed
Sodium morrhuate	8	3	1	—
Sodium citrate	32	9	3	2
Monoethanolamine oleate	57	24	4	4
Invert sugar and sodium chloride	25	13	3	2
Subtotals	122	49	11	8
Total				190

A 30 per cent solution of sodium citrate with 1 per cent procaine hydrochloride was next to succeed the morrhuate. Within a few months a distressing reaction occurred and the local anesthetic ingredient was eliminated at once; thereafter, the citrate alone gave no difficulty.

Monoethanolamine oleate was subsequently used in a search for more effective action. Thus substance was made up in 5 per cent dilution, with 2 per cent benzyl alcohol. It seemed to create no less painful local reactions but appeared to provide better results. The largest number of angiomas was treated with this solution, but table 9 reveals no appreciably improved efficiency. Invert sugar was used later. As prepared by our hospital apothecary, the invert sugar solution is of 30 per cent strength, with the addition of 10 per cent sodium chloride and 1 per cent phenylethyl alcohol. It has been comparatively free of reactions, perhaps less painful and productive of essentially as good results as the others.

Although the impression had arisen that sodium citrate was relatively slow and less efficient, table 9 does not bear this out. Nevertheless, citrate solution has been almost entirely superseded in the last few years. Monoethanolamine oleate and invert sugar have been employed in alternate cases without selection, after the latter solution more recently came into use.

Not all of the unsatisfactory results should be attributed to the various solutions, since faulty technic can give rise to more scarring than would otherwise ensue. There were 7 lesions that ulcerated after sclerosing injections were instituted. Five tumors continued to enlarge somewhat during therapy; 3 stopped after a few treatments, but 2 required adjunct measures. One was a gingival lesion which had appeared with the eruption of a deciduous tooth six years earlier. It did not respond to roentgen therapy but was apparently relieved one year later by extraction of the tooth and excision of the lesion. With the appearance of the permanent tooth the tumor recurred, one year prior to observation, and hemorrhages were frequent. Growth stopped after several injections of sclerosing solution and the angioma had receded 50 per cent in six months time. Hemorrhages still occurred at night but less frequently; an oral surgical consultant advised radiation therapy, and the patient was entirely lost from the series. A large lesion covering half the face and neck also received roentgen treatment. This was flat until the age of 6 weeks and then began to swell with increased discoloration. Injections were started one week later. Growth continued slowly for six weeks and the mass then began to expand rapidly, doubling its area and tripling its elevation within ten days. At that point three roentgen treatments were administered at monthly intervals. Growth ceased after three months, but no shrinkage took place after six months and injections were resumed. Altogether twenty treatments were given during a total period of two years. The outcome was remarkably good, with normal contours and but few splotches of color, when last observed at the age of 4½ years.

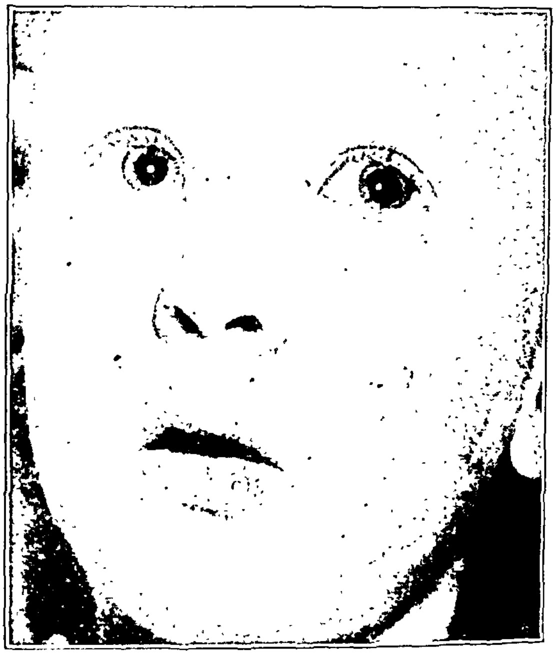

Fig. 4.—P. G., ten months after treatment. One year later this lesion was not detectable.

REACTIONS

Subjectively there is pain of considerable degree immediately on instillation of these sclerosing solutions into the tissues. Patients of sufficient age to offer reliable data have reported sharp pain for five minutes to one hour; dull aching or minor discomfort may persist as long as two to four hours. In about half the cases, however, no appreciable annoyance continues beyond one-half hour unless a large quantity of solution has been injected.

Objectively, the first local change is blanching if sufficient fluid is inserted to distend the tumor or if the injection is too superficially placed. The usual color returns quickly after termination of the treatment, and swelling soon begins. Some angiomas will double their size within fifteen minutes and may quadruple their mass by the next day, with some inflammatory reaction extending to adjacent tissues. This is seldom at all distressing or uncomfortable unless from pressure on underlying structures. It may require a week or more to subside entirely.

Untoward reactions occurred eight times among the 1,566 injections administered in this series of 190 angiomas. In several instances an undesirable episode was credited as a reaction when considerable doubt existed, but among infants and small children any symptom warrants suspicion. The most common systemic reaction consisted of malaise and anorexia with or without vomiting or fever. This happened six times; three of the reactions followed injection of monoethanolamine oleate (one reaction also included a transient toxic erythema); two occurred with sodium morrhuate and one came after injection of invert sugar solution. One patient is included twice, having reacted to morrhuate, and subsequently to monoethanolamine. The latter drug appeared to cause urticaria once. A reaction of the nitritoid type with syncope developed almost immediately after injection of sodium citrate with procaine on one occasion; the baby subsequently received invert sugar solution on several occasions without mishap.

TECHNIC

There is no particular skill required to administer sclerosing solutions by injection. The site of puncture may be either directly into the lesion or through the skin just beyond its periphery. A small caliber needle should be employed (24 to 26 gage) and of sufficient length in accordance with the size of the lesion to require the minimum number of punctures. Hemorrhage has never been a problem regardless of the site of injection; firm pressure is applied for two or three minutes and bleeding is negligible. The number of sites of injection depends entirely on the size and shape of the individual lesion. The quantity of solution instilled at the first treatment varies from 0.05 to 0.5 cc., this again in accordance with the size of the lesion. The first injection may have no effect if the angioma is of appreciable size, but a small dose should cause less systemic disturbance if the patient happened to react. One other qualifying factor enters into the amount of the initial dose. If there is an allergic family background, the first treatment may well be half the customary amount. The increase in quantity of solution can be rapid with additional treatments if the lesion is large. The maximum amount employed in any one lesion in this series was 1 cc. simultaneously into each of ten sites covering a large area. The frequency of injections depends mainly on the relative activity of the individual tumor. If an angioma is steadily enlarging, it may require treatments every week or two until growth is arrested. As time passes sclerosing injections may be given at intervals of one to three months. It is of primary importance to keep the solution from being deposited too superficially, since this will nearly always eventuate in sloughing. If blanching is observed, that particular area has received sufficient fluid and the needle should be moved to another region of the tumor.

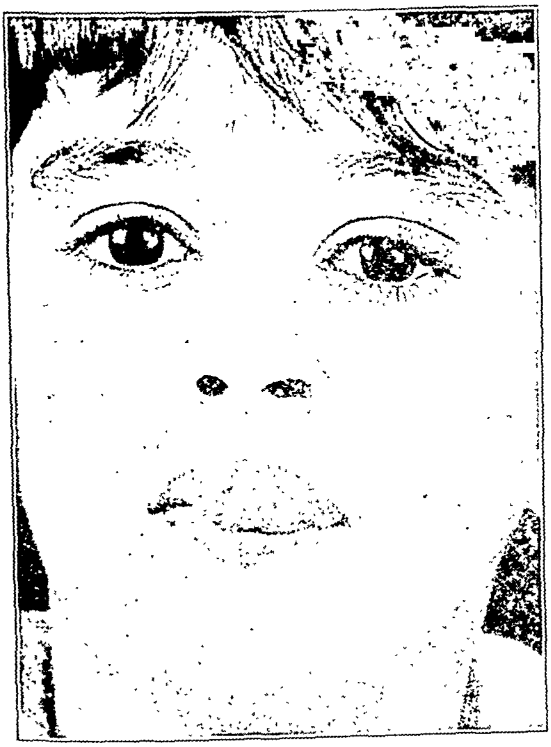

Fig. 5.—F. O., aged 8 years. Neurocutaneous syndrome, with small areas of port wine stain over the entire left side of face and some in scalp, and strawberry hemangioma on lateral half of left upper eyelid. Three fourths of the upper lip showed cavernous angioma. All of the left buccal mucous membrane revealed mixed strawberry and cavernous changes. All of the left side of the face would swell when the head was held down. At the age of 5½ years the left external carotid artery had been ligated and a plastic repair of the lip defect performed; improvement was slight. In ten months the lip received six injections and the eyelid and buccal mucous membrane five each.

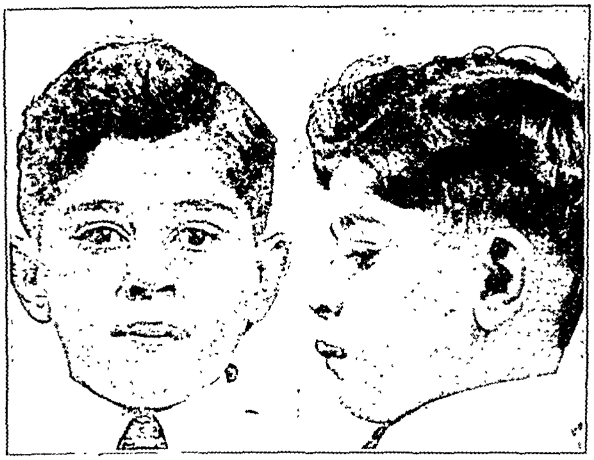

Fig. 6.—F. O., eighteen months after treatment. The cavernous lesion on the lip is strikingly improved and the strawberry mark on the eyelid is definitely regressing. There is little change visible in the port wine elements. Involvement of mucous membrane has decreased about 75 per cent.

In treating the mixed variety of hemangioma, attention need be directed only to the cavernous portion; by the time this element has received sufficient therapy, the strawberry features of the lesion will nearly always have made decided progress toward obliteration, and they may require no additional injections. If a patient returns with local reaction from a preceding treatment still in evidence, or if the lesion shows no residual reaction but is firm throughout, additional injection should be postponed. If a large cavernous angioma seems unduly slow in response to sclerosing injections, the first encouraging sign may be cordlike thickening which can be palpated within its depth. Frequently in the earlier period of this work a patient was advised that surgical procedures or some other adjunct measure would probably be necessary. When they demurred and returned after periods of three to six months, many of the lesions showed surprising improvement. Thus it gradually became evident that haste is not necessary once the growth of a lesion has been arrested. When a lesion can be reached from either a cutaneous or mucous membrane surface, experience indicates that there is less discomfort from the injections when administered through the mucous membrane; this applies to eyelid lesions as well as oral tumors. No local anesthetic was employed prior to any injection.

UNTREATED GROUP

The 37 patients who were not given sclerosing injections exhibited 67 lesions. Their angiomas consisted of 46 strawberry marks, 8 purely cavernous structures, 8 of mixed type and 5 senile cavernous lesions. These cases were followed for periods of one to five years, with an average observation period of 23.2 months per lesion.

Among the 46 strawberry angiomas, 9 had been previously treated, needing no additional attention. Eleven involuted spontaneously, 11 were gradually regressing, 12 remained unchanged and 3 grew steadily larger.

The 8 cavernous hemangiomas eventuated as follows: in 3 tumors results of previous treatments were good; 3 regressed steadily, and 2 remained unchanged

Mixed strawberry and cavernous tumors, numbering 8, slowly improved in 3 instances, were stationary in 2 and enlarged in 3.

All of the 5 untreated senile cavernous angiomas were apparently fully matured and exhibited no further change. One had existed for twelve years before observation and was followed three more years, remaining fixed.

COMMENT

Injection therapy for angiomas is far from being a new approach. This method was used nearly one hundred years ago to produce sclerosis in aneurysms and varicose veins.[1] A great variety of substances have been injected from time to time throughout succeeding years. Some of these include ferric salts, mercuric chloride, red mercuric iodide, antipyrine, sodium salicylate, arsphenamine, iodine, potassium iodide, iodotannic acid, acetic acid, citric acid, alum, phenol, chloral hydrate, silver nitrate, sodium chloride, dextrose, quinine salts, urethane, urea, alcohol, sodium morrhuate, sodium citrate, monoethanolamine oleate, invert sugar and boiling water. Most of these agents were quickly abandoned, some of them because of serious consequence. With the passage of time and the use of safer solutions, there is practically no hazard remaining. There is one series of 325,000 cases of varicose veins cited [1] without pulmonary embolism.

Andrews,[2] Kaessler [3] and Watson and McCarthy [4] have reported satisfactory results from the use of sclerosing injections for hemangiomas in groups of patients large enough to warrant proper conclusions. Andrews' series includes 408 cases in which he achieved 70 per cent perfect results and 10 per cent additional satisfactory response. He compared this group with 146 cases in which treatment was by means of radium. The latter method provided 65 per cent perfect results, and 23 per cent were satisfactory. It was Andrews' feeling that injection therapy was more desirable in many regions where radiation is hazardous. He felt that the duration of treatment was appreciably shortened by the use of sclerosing solutions. Andrews stated that injections should be employed more extensively because of their "effectiveness, freedom from danger, and simplicity."

Watson and McCarthy [4] described the results of treatment in over 1,300 angiomas by several methods. They found that excision provided the highest percentage of good results, but that particular group of patients was most carefully selected and they warned against a keloidal tendency. In spite of the selection of cases for surgical treatment, these authors found it possible to obtain nearly as good results with either solid carbon dioxide or sclerosing solutions. External radium, interstitial radium and roentgen therapy were successively less satisfactory in their series.

There is differing opinion regarding the advisability of irradiation in the majority of hemangiomas. At the Massachusetts General Hospital the feeling of our radiologists is: "Usually radiation therapy of any sort is contraindicated in hemangiomas. The cavernous type is difficult to control because of the size of the vessels and the maturity of the cells; strawberry angiomas respond readily to radiation but the majority of these will disappear without treatment. Rarely in large tumors that have a tendency to bleed easily, where one's hand is forced by a rapidly growing tumor, or where the persistence of the tumor will cause deformity of a growing part or may be a hazard to life, small doses of roentgen therapy may be given, but we prefer to use some other method of control, such as injection, which does not harm the overlying skin. It does not seem justifiable to compromise the skin over a benign lesion, which is probably going to disappear anyway, and so run the risk of undesirable late sequelae." [5] Pfahler [6] disagreed and has reported a large series of cases treated by radium with satisfactory results. The time required for therapy was a year or longer per lesion. Pfahler stated that "hemangiomas rarely if ever regress spontaneously." In contrast, Anderson [7] expressed the opinion that all angiomas should be left strictly alone until the patient is at least 6 years of age, believing that spontaneous involution will have occurred in the majority by that time. The best control series found in the literature was reported by Lister,[8] who followed a group of 77 children with 93 untreated vascular nevi for a period of one to seven years. All except one lesion disappeared or were well on their way by the age of 5 years. It was interesting to review a report by Traub [9] published about fifteen years ago. He gave therein the results of a questionnaire answered by ninety members of the American Dermatological Association. The consensus regarding behavior of angiomas and the advisability of treatment was in agreement with the findings among the cases reported herein.

A few additional observations regarding injection therapy for angiomas will bear comment. It is a most favorable indication for all of the color to disappear from a lesion under diascopic examination; the contrary is true if an appreciable amount of pigmentation is found under diascopy. Lesions which display patches or even small flecks of paler color have already begun some degree of spontaneous sclerosis and will probably progress nicely under treatment; the darker the color, the more likely that the response will be slow. The more superficial or shallow angiomas are apt to be the most tardy in returning to normal color. Those angiomas exhibiting visible sprays of radiating vascular channels which appear to be mature vessels are often exceedingly slow, and the individual vessels may remain unaffected by sclerosing injections. Electrolysis is most suitable for the obliteration of these structures. Whether a vascular tumor will swell in one position or another, or with any form of physical exertion, seems to have little prognostic significance. On the other hand, the slower the rate of refilling after the blood is forced out of an angioma, the more favorable is the prognosis. It will bear emphasis again that mothers should be advised regarding the likelihood of spontaneous involution and that they should also be warned, in the case of large lesions, that the lesions may ulcerate whether or not treatment is instituted.

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SUMMARY

The common types of vascular nevi have been described and their probable mode of behavior portrayed. The indications for and advisability of treatment have been discussed. The various methods of treatment are outlined. Most of them will be successful when properly administered.

A group of 233 patients with 310 vascular tumors comprise the series under observation. These provided a series of 190 hemangiomas which were treated by the injection of sclerosing agents. The technic of injection therapy is simple and the procedure is not hazardous. Good results were obtained in 64 per cent of the entire group, and an additional 26 per cent had fairly good effect. Only the remaining 10 per cent of the lesions came out poorly or were failures.

These results compare well with published statistics but are less favorable than some. It seems doubtful whether any better cosmetic effects can be obtained with other methods. Sclerosing injections perhaps bring about little or no more rapid involution of lesions but should provide less scarring. It was obvious that the youngest patients and the lesions of shortest duration responded most satisfactorily. Lesions located about the face and in the mouth gave the poorest results.

It is not the purpose of this paper to indicate that sclerosing injections are remarkably superior to other means of treating angiomas. The method of approach for any given lesion should be selected in accordance with the individual circumstances, and other measures may seem better advised than sclerosing injections. It might be said, however, that this form of treatment more nearly approaches a means of assistance to the natural processes which tend to bring about spontaneous sclerosis in hemangiomas.

ABSTRACT OF DISCUSSION

DR. H. FORD ANDERSON, Washington, D. C.: In the past twenty years as dermatologist to Children's Hospital in Washington, and in private practice, I have had the opportunity to direct treatment in hundreds of cases. Thrombosing solutions of various kinds have been used since 1927, after observation of the work of Planner in Kyle's Clinic and Fuhs in Arzt's Clinic, with both varicose veins and vascular nevi. In handling the problem of therapy in nevi, it is difficult to lay down too fixed a rule as to the efficacy of one method over all others. As time goes on, the signs of self involution are watched for more and more, and when they are found, of course the tumor is watched carefully but no therapy is instituted in by far the large majority of instances. When, for one reason or another, therapy is considered advisable, the choice depends to some extent on the experience and peculiar proficiency of the operator in one or another method of procedure. Some become more proficient in the use of one method of approach and naturally will choose that modality when there is a close decision to be made between modes of attack. In many instances, the same tumor can be equally well disposed of by one or another operator, each using one of four or five of the well recognized methods of approach. We should do all in our power to become adept in choosing and administering the best therapy in the particular case, no matter what method it is, excepting probably extensive, intricate or plastic surgery, when we should see that the best available plastic surgery is employed. In this day and age, this degree of expertness cannot be attained without a comprehensive knowledge of the use of thrombosing agents. It is here that the author is justified in adding his valuable contribution to those of Andrews, Kaessler, Watson and McCarthy and others. In 1938, Andrews emphasized the effectiveness, simplicity and relative safety of the injection treatment, but not to the exclusion of other procedures. In this whole problem, one cannot emphasize too strongly one thing, and that is to proceed slowly and always be reluctant about using any kind of treatment after involution has once begun. This must be stressed most when radium or roentgen rays are employed.

TREATMENT OF ECZEMA (ATOPIC DERMATITIS) IN INFANCY

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Atopic dermatitis, most commonly known as infantile eczema, is the most important skin disease of infancy and childhood. It is not the most common one, since most infants escape this altogether while practically every infant has at one time or another at least a minimum of seborrheic dermatitis in the form of "cradle cap" or of eczematous dermatitis of the contact type, particularly in the form of a diaper rash. The eczematoid dermatoses commonly start on the cheeks, and at the onset it may be difficult or impossible to determine whether one is dealing with atopic, seborrheic or contact dermatitis. It is also possible for the inexperienced or careless person to mistake other diseases such as scabies, psoriasis or pediculosis for atopic dermatitis, but fortunately these conditions are not common in infancy and childhood, and the diagnosis of atopic dermatitis is not often mistakenly made in this age group.

No one pretends that the treatment of atopic dermatitis is completely satisfactory. The problem is to do the best one can with a disease which is usually self limited, with a tendency to spontaneous remissions and eventual recovery regardless of therapy. However there are two reasons why one should not depend too much on nature for the eventual cure of the patient:

1. There is no way of telling in advance which patient will "outgrow" atopic dermatitis and which patient will not. It is a great tragedy, particularly for a girl, to be obliged to pass through puberty into young adulthood with a diseased skin. The psychic trauma in such cases is often far out of proportion to the actual discomfort caused locally by the dermatitis. Every effort should be made to clear the child's skin as soon as possible and to continue to keep it clear.

2. The presence of atopic dermatitis is an indication that one is dealing with an allergic child. This means that only one phase of a cycle which may go on with varying manifestations and with varying degrees of intensity for the rest of the patient's life is being observed. The object of treatment should be not only to relieve the present complaint but to outline a way of life which may possibly prevent the development of other and perhaps worse allergic diseases, such as asthma, in the future.

It is not the purpose of this discussion to consider thoroughly the controversial problem of the prophylaxis of allergic diseases.[1] It can at least be said of the

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[1] Peshkin, M. M.: Prophylaxis of Asthma in Children, Internat. Clin. **3**:262, 1930. Glaser, J., and Landau, D. B.: Prophylaxis of Allergic Disease, J. Pediat. **8**:470, 1936. Ratner, B.: Allergy in Childhood: II. Prophylaxis, ibid. **12**:737, 1938. McGee, W. A.: Allergy in Childhood: Prophylaxis, Early Recognition and Treatment, J. A. M. A. **111**:1551 (Oct. 22) 1938. Kern, R. A.: Prophylaxis in Allergy, Ann. Int. Med. **12**:1175, 1939.

various measures which have been advocated that they do no harm. It will take years of careful, well controlled study to discover if they really help, and it is my feeling that meantime the patient should be given the benefit of the doubt. A rather concrete bit of evidence of the possible value of one of such procedures is the work of Grulee and Sanford,[2] who in a study of over 20,000 infants at feeding stations in Chicago found the incidence of "eczema" lowest among breast-fed infants, twice as great among those partially breast fed and seven times as great among those completely artificially fed. This work, which is of sufficient importance to be checked by other investigators, should be sufficient indication, if confirmed, of the need of breast feeding for infants born in allergic families. It is too often forgotten that breast milk is the only natural food for the human infant, at least during the first months of life, and that the cow, deserving as she is of the title of foster mother of the human race, after thousands of years of domestication still produces milk primarily designed for calves and not for human beings.

The treatment of any given case of atopic dermatitis resolves itself into the following procedures: (1) prophylactic measures, briefly mentioned before, (2) environmental control, (3) local therapy, (4) systemic therapy and (5) dietary therapy. The sixth procedure, specific treatment, which consists in finding and eliminating the causative allergen when possible, is sometimes involved in the five foregoing procedures, but assistance is often received in this direction from cutaneous testing.

It was formerly believed that in infancy ingested allergens played the most important role. At present there is no certainty of this. It is now generally accepted that atopic dermatitis may at times be caused by direct contact of the skin with allergens (transepidermal penetration[3]) as well as by allergens which have been inhaled and which reach the skin through the blood stream as do the ingested allergens.[4] It is also probable that atopic dermatitis and contact dermatitis have been too sharply separated in the past. This has recently been emphasized by Hill[5] and by Ratner.[6] In connection with this subject, it should also be mentioned that there is doubtless a close relationship between seborrheic and atopic dermatitis. Often an infant will be observed with what appears to be typical seborrheic dermatitis, which as the child grows older gradually develops into typical atopic dermatitis.

The characteristic distribution of atopic dermatitis, with the lesions worse on the face, the area of the arms below the elbows and the area of the legs below the knees, suggests a possible contact origin. It is tempting to consider that such lesions might be caused by a ubiquitous and powerful allergen, house dust, which could act either by contact or by inhalation.

The often remarkably beneficial effects of hospitalization are commonly attributed to avoidance of house dust as well as of other environmental allergens. Some allergists are treating patients with atopic dermatitis by the injection of house dust extract, and although these studies have not yet been published good results are claimed. It impressed me that if house dust does cause atopic dermatitis positive reactions to patch tests should be obtained with house dust extract. Forty-two successive infants and young children with typical atopic dermatitis were given patch tests with concentrated pooled house dust extract. Both aqueous and lipid fractions were used. In this series there were three definitely positive reactions and two questionable reactions to the aqueous extract. Four infants gave definitely positive reactions to the dust lipid, and there was one questionable reaction to this extract. Only 1 patient reacted positively to both the aqueous and the lipid preparation. In this particular case good results were obtained after the injection of dust extract containing both fractions. However since other measures were also used the occurrence in this case proves nothing, and the problem is still being investigated. Stroud[7] has reported cases of dermatitis in adults due to the lipid fraction of house dust.

While positive evidence is lacking that house dust may cause atopic dermatitis, the allergist is justified in advising an environment as free from dust as possible for the patients involved both as a possible therapeutic measure and as a prophylactic one. In addition, specific directions should be given for avoiding other material to which the infants are or may become easily sensitized, such as feathers, wool, animal pets, silk, clothing dyes, soap and others which may be indicated.

One of the major problems in environmental control in the colder parts of the United States lies in providing children with adequate protection by means of clothing which does not contain wool, particularly with regard to snow suits and other articles of winter apparel. This has lately been achieved by using tightly woven cotton cloth of good quality with spun glass fiber[8] as an insulating material between the outer and inner layers. This is said to be superior to wool as regards warmth, and such clothing may prove invaluable in the care of the atopic child. While it is possible to weave blankets of spun glass fiber to take the place of wool blankets, their expense precludes general use. It is hoped that eventually less expensive blankets will be put on the market patterned in construction after the snow suits.[8a]

An important part of the local treatment of the child with atopic dermatitis is the cleansing of the skin by means of bathing. It is a matter of common experience that in most patients with this disease the condition is made worse by the use of soap. According to Sulzberger and Baer,[9] the exact mechanism of this is unknown. They suggest that soap, by virtue of its degreasing and keratolytic action, favors the percutaneous penetration of environmental allergens to which atopic patients are often highly sensitive. To obviate the disadvantages of soap, untreated vegetable oils or mineral oils were used for cleansing the skin. Later sulfonated oils were found to be somewhat superior. All oils, however, have the psychologic disadvantage of not making suds. Most satisfactory to date have been the newer wetting agents derived from lauryl alcohol. These are active detergents and make suds, but they also defat and dry the skin and may act as sensitizers although this rarely occurs in infants and young children. Two particular preparations, "lowila cake"[10] and "dermolate,"[11] are supplied in the form of soap bars. This is particularly useful because it gives the mother the feeling that she is simply using another kind of soap on her baby.

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[2] Grulee, C. G., and Sanford, H. N.: The Influence of Breast and Artificial Feeding on Infantile Eczema, J. Pediat. 9: 223, 1936.

[3] Sulzberger, M. B.: Dermatologic Allergy, ed. 1, Springfield, Ill., Charles C Thomas, Publisher, 1940, p. 69.

[4] Sulzberger, M. B., and Vaughn, W. T.: Experiments in Silk Hypersensitivity and the Inhalation of Allergen in Atopic Dermatitis (Neurodermatitis Disseminatus), J. Allergy 5: 554, 1934.

[5] Hill, L. W.: The Pathogenesis of Infantile Eczema, J. Allergy 18: 60 (Jan.) 1947.

[6] Ratner, B.: Pediatric Approach to the Management of Allergic Eczema in Children, New York State J. Med., to be published.

[7] Stroud, C. M.: The Use of House Dust Oil and Thrasher Dust Oil in Contact Dermatitis, J. Allergy 6: 464, 1935.

[8] Manufactured by the Owens-Corning Fiberglas Corporation, Toledo, Ohio.

[8a] Since this paper was presented such blankets have become available through the Expert Bedding Co., 2454 N. Halsted St., Chicago, Ill.

[9] Sulzberger, M. B., and Baer, R. L.: Effects of Soap on the Abnormal or Diseased Skin, in Fishbein, M.: Medical Uses of Soap, ed. 1, Philadelphia, J. B. Lippincott Company, 1945, chap. 4, p. 72.

For bathing, colloid baths are commonly used and are highly satisfactory. The simplest is prepared by adding a cup or two of corn starch to a tub of tepid water. The patient is soaked in this for ten or fifteen minutes, and with this the detergent may be used. The patient should be dried by sponging and not by rubbing. Tar baths are also useful. The most readily available preparation is liquor carbonis detergens (liquor picis carbonis N.F.). This is a saponified alcoholic extract of coal tar. Two cupfuls are added to a tub of water and the patient allowed to soak for ten minutes. The "Almay tar bath"[12] is a useful commercial preparation made from juniper tar (oil of cade), and two to four tablespoons are used in a tub of water.

The local treatment of atopic dermatitis depends on whether the condition is acute, acute exudative, subacute or chronic. Probably the best treatment for the exudative stage is the application of 0.5 per cent solution of aluminum acetate in a 1 to 20 dilution.[13] Potassium permanganate in dilutions of 1:5,000 to 1:10,000 may also be used. A saturated solution of boric acid is satisfactory but should not be used long or extensively as it is not without danger.[14] Ratner,[6] pointing out the difficulty of applying wet dressings to the skin of patients at this age, recommended painting the raw or oozing areas with a 2 to 4 per cent aqueous solution of gentian violet medicinal, over which calamine lotion in single or double strength with or without phenol may be applied if desired. In the acute stage, the so-called 1-2-3 ointment may be used. This consists of one part of aluminum acetate solution, two parts wool fat and three parts paste of zinc without salicylic acid.[15]

In the subacute and chronic stages other ointments are employed. The single most effective ingredient is tar. The exact mechanism by which tars exert their clinical effect is not known. Occasionally a tar from one source will be completely ineffective while a tar of other origin will be completely satisfactory in the treatment of the same patient. Because of the disagreeable appearance of crude coal tar and of ointments containing tar, attempts have been made to extract the active antieczematous principle. Nelson and Osterberg[16] extracted the steam distillate of crude coal tar with ether and obtained a product commonly as efficient as crude coal tar but almost white. This preparation is the base of most of the so-called white tars now on the market. Dr. Samuel W. Clausen, of the Department of Pediatrics of the University of Rochester School of Medicine, obtained a highly satisfactory product in 1929 simply by the extraction of crude coal tar with hot alcohol.[17]. Irritating material is removed by low pressure distillation. This extract is commonly used in 3 per cent strength in an ointment base.

One of the most satisfactory vehicles used in atopic dermatitis is paste of zinc without salicylic acid. This product has been included in the National Formulary since 1942 and is made up of one part zinc oxide, one part starch (corn or arrowroot) and two parts white petrolatum. This is an excellent vehicle for tar or tar extract, mercury, sulfur and other drugs. Phenol in proportions of one quarter to 1 per cent is sometimes added as a local anesthetic if the area to be covered is not excessively large. Salicylic acid may be added in proportions of 1 to 3 per cent depending on whether a stimulant or a keratolytic is desired. "Vioform" (5-chloro-7-iodo-8-hydroxyquinoline), introduced into this country by Sulzberger and his co-workers,[18] is occasionally helpful in atopic dermatitis, especially if the skin is superficially infected. It is somewhat more useful in seborrheic dermatitis. It is used in 1 to 3 per cent concentration in petrolatum or in a vanishing cream base.[19] Hill[20] has reported good results in the treatment of chronic stubborn patches of atopic dermatitis with the Swartz ointment (4 per cent merbromin with 6 per cent salicylic acid, sufficient water to dissolve and sufficient wool fat and petrolatum to make 2 oz. [60 Gm.]). Robinson[21] favored the compound resorcin ointment (N.F.). There are also on the market many proprietary ointments whose composition is not completely known, some of which are exceedingly effective. However, as Ratner[6] has pointed out, if one consults the United States Dispensatory he will find listed practically every ointment in common use, and by a proper utilization of this information ointments can be created to fit the needs of the individual patient.

In all instances of atopic dermatitis it is well to put the child on a simple elimination diet. Such a diet for a child of 1 year of age or less may be easily made up from the following ingredients, the number of the ingredients depending on the age of the child: (1) cow's milk substitute, (2) one single pure cereal such as oatmeal, (3) two vegetables (carrots and string beans), (4) two fruits (apple and pear), (5) one meat (capon or rooster) and (6) vitamins A, D and C. Even for children up to the age of 1 year a trial diet consisting only of the cow's milk substitute may be used and the other ingredients added gradually if the skin improves.

The substitution of the milk of another species of mammal is occasionally successful if the patient is sensitive to lactalbumin, which is species specific. However the great majority of infants who are sensitive to milk are allergic to casein, and this is essentially of the same composition regardless of the species of the animal. I therefore commonly use soy bean milk. If an infant is sensitive to soy bean, a satisfactory artificial milk whose protein base is meat[22] may be used with complete satisfaction of the requirements for growth and development. Liquefied meats are now available commercially which may be used for this purpose.[23]

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[10] Westwood Pharmacal Company, Buffalo, N. Y.

[11] Rare Chemicals, Inc., Harrison, N. J.

[12] Almay, Inc., 56 Cooper Square, New York 3, N. Y.

[13] This may be conveniently prepared by adding one "domeboro" tablet (Dome Chemicals, Inc.) to a pint of water.

[14] Pfeiffer, C. C.; Hallman, L. F., and Gersh, I.: Boric Acid Ointment, J. A. M. A. **128**:266 (May 26) 1945. Watson, E. H.: Boric Acid, a Dangerous Drug of Little Value, ibid. **129**:332 (Sept. 29) 1945.

[15] Rarely a person sensitive to wool may also be sensitive to wool fat. For such persons carbowax preparations (as "hydrosorb" [Abbott Laboratories] or Burroughs Wellcome and Co.'s greaseless ointment base) may be used.

[16] Nelson, M. O., and Osterberg, A. E.: A Purified Coal-Tar Ointment for the Treatment of Infantile Eczema, Arch. Dermat. & Syph. **15**:669 (June) 1927.

[17] Unpublished data.

[18] Sulzberger, M. B., and Wolf, J.: Dermatologic Therapy in General Practice, ed. 2, Chicago, The Year Book Publishers, Inc., 1942, p. 106.

[19] Commercial preparations made by Ciba Pharmaceutical Products, Inc., are now available.

[20] Personal communication to the author.

[21] Robinson, H. M.: Eczema in Infants, Clinics **3**:834, 1944.

[22] Rowe, A. H.: Elimination Diets and Patient's Allergies, Philadelphia, Lea & Febiger, 1941, p. 200. Glaser, J.: Use of Strained Meats as the Protein Basis for Milk Substitutes in the Treatment of Milk Allergy, J. Allergy **15**:283, 1944.

Chicken is used as the meat in the aforementioned diet because in my experience allergy to this occurs less often. Capon or rooster is specified on both theoretic and practical grounds to avoid feeding the infant egg protein as infants are more commonly sensitive to egg than to any other food except perhaps milk. The theoretic consideration is that one of the constituents of egg albumin, conalbumin, corresponds to serum albumin in the blood of the hen[24] and this is present in sufficient quantities to produce symptoms on ingestion of the meat. The practical consideration is that if the hen is used the meat may be contaminated by egg protein when it is cleaned.

Because cod liver oil has on occasion produced allergic reactions in infants,[25] "provatol" (Wyeth, Incorporated) is used. This consists of provitamin A (carotene) together with irradiated ergosterol of vegetable origin dissolved in sesame oil to provide vitamin D. To provide vitamin C, crystalline ascorbic acid may be prescribed or "cecon" (Abbott Laboratories), which consists of 10 per cent ascorbic acid dissolved in propylene glycol.

If, after a period of seven to ten days the child obtains adequate relief on this diet, one new food may be added each week or so according to his needs and tolerance. If the child does not do well, simple variations may be made in the various dietary constituents which are occasionally helpful. However at this point cutaneous testing is sometimes useful in enabling one to select a diet which has the best chance of giving relief as well as being of assistance as a guide to the foods which may be added to the diet in the future. When giving cutaneous tests, one also endeavors to find clues to environmental factors, such as inhalants and contactants, which may contribute to the child's disability. In infants and young children scratch testing is the procedure of choice. If intradermal tests are used, one should be sure that each test has been preceded by a negative reaction to a scratch test in order to avoid generalized reactions which may be serious and which may even on rare occasions result in the death of a highly sensitive child. Direct testing is commonly the most satisfactory procedure although passive transfer tests should be done when the skin is generally involved.

SYSTEMIC MEDICATION

The most disagreeable symptom of atopic dermatitis is itching. Occasionally the so-called antihistamine drugs (diphenhydramine hydrochloride ["benadryl"] or tripelennamine hydrochloride ["pyribenzamine"]) will give gratifying relief, but this usually is inconstant and variable. The sedative action which these drugs sometimes have may also be helpful. However it must be realized that sometimes apparent sedation which follows these drugs is due to the relief of symptoms so that the exhausted child sleeps naturally. Phenobarbital, especially in combination with acetylsalicylic acid sometimes helps. "Demerol" (1-methyl-4-phenyl piperidine 4-carbonic acid) is often most useful. An infant 2 months of age and upwards may be given one quarter of a 50 mg. tablet every four hours and the dose gradually increased, if necessary, until relief is obtained or until one tablet is given every four hours.[26] Because of the danger of addiction, however, routine or prolonged use of the drug is to be avoided.

Hansen and his associates[27] and Stoesser[28] have shown that in atopic dermatitis there is often a deficiency of the unsaturated fatty acids of the blood and that improvement of the skin condition is associated with an increase in these fatty acids. This observation has led to corresponding therapeutic measures, and in some instances the results have been beneficial. There are obvious difficulties to well controlled clinical feeding experiments, but at least this is a procedure which is not apt to do harm and which has a reasonable chance of success. Fortunately soy bean oil is rich in unsaturated fatty acids and may be easily fed to infants and children. Lard also is used. It should be emphasized that the proponents of this method offer it as an adjunct therapeutic measure and not as the sole method of treatment.

Chronic atopic dermatitis will in rare instances respond remarkably well to the oral administration of potassium arsenite solution. With a chronic disease of this character one hesitates to use arsenic. However now that 2,3-dimercaptopropanol (BAL) is available as an effective antidote for arsenic poisoning perhaps the use of arsenic in atopic dermatitis should be more thoroughly investigated.

One of the most common errors in the treatment of children with atopic dermatitis and indeed in the treatment of allergic children generally is failure to give routine prophylactic treatment for diphtheria, pertussis and tetanus for fear of disagreeable reactions on account of the child's allergic constitution. In my experience in the general practice of pediatrics, largely dealing with allergic infants, disagreeable reactions of any significance are no more common in allergic than in nonallergic children. If desired, the injections may be started with a half or a quarter or even less of the orthodox dosage, and they may then be continued, the amount depending on the patient's reaction, until the full course of treatment has been completed. The immunologic response appears to be just as good as when the treatments are given in fewer but larger doses.

It is particularly important that the allergic child be immunized against diphtheria and tetanus so that he will never need the corresponding antitoxins. If tetanus toxoid has been omitted and tetanus antitoxin is indicated, the bovine preparation[29] should be used if available unless the child is allergic to milk or beef. In such cases a despeciated horse serum antitoxin should be used. Despite the so-called despeciation, this serum must be administered with extreme care.

Hypoimmunization against pertussis is important because respiratory allergies are likely to develop in the allergic child. If such a child contracts pertussis, the disease may aggravate a clinical or subclinical respiratory allergy, particularly bronchial asthma. It is important that a phase 1 pertussis vaccine be used and that it be grown on mediums prepared with human rather than with animal blood to avoid sensitization to a foreign protein. Doses of pertussis vaccine should be administered each year until the child is at least 5 years of age. If whooping cough does develop, it should be vigorously combated with human immune globulin.[30] or by the use of hyperimmune human serum.[31]

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[23] Swift & Company.

[24] Hektoen, L., and Cole, A. G.: Proteins of Eggwhite, J. Infect. Dis. **42**: 1, 1928.

[25] Balyeat, R. M., and Bowen, R.: Cod Liver Oil Sensitivity in Children, Am. J. Dis. Child. **47**: 529 (March) 1934.

[26] Glaser, J.: Pediatric Allergy: A Critical Review of Recent Literature, Ann. Allergy **3**: 373, 1945.

[27] Hansen, A. E.; Knott, E. M., and Weise, H. F.: Eczema and Essential Fatty Acids, Am. J. Dis. Child. **73**: 1 (Jan.) 1947.

[28] Stoesser, A. V.: Influence of Soy Bean Products on the Iodine Number of the Plasma Lipids and the Course of Eczema, J. Allergy **18**: 29, 1947.

[29] Glaser, J.: The Use of Bovine Antitoxin for the Prophylaxis o Tetanus, J. Pediat. **19**: 403, 1941.

A child with atopic dermatitis should not be vaccinated against smallpox until the skin is perfectly clear. The reasons for this are, first, that there is danger of multiple external inoculations in scratched-areas and, second, that for a few days after vaccination the virus is carried about in the blood stream and tends to localize in any area of diseased skin. This may produce a generalized vaccinia which may be serious and occasionally disfiguring or even fatal. The length of time which should elapse from the time the skin is clear until vaccination can be safely carried out has never been determined. I generally vaccinate the children during the summer months (except for a minority whose skin is commonly worse in the summer) two or three weeks after the skin is perfectly clear and have never had any complications as a result. It is also important that no fresh vaccinations be made on children from homes in which there are other unvaccinated children with atopic dermatitis. Contact of the skin of these children with a fresh vaccination pustule may produce inoculation, which results in a generalized vaccinia. The contact may also be indirect, e. g., from a soiled towel or washcloth. One death occurred from generalized vaccinia in a hospital of my acquaintance when an infant with atopic dermatitis was bathed in a tub in which a child with a reacting vaccination had just been washed.

In the past few years it has become recognized that Kaposi's varicelliform eruption represents an infection with the virus of herpes simplex (and possibly other viruses) in an eczematous skin. Lynch and others[32] have reported cases in which such infections occurred in infants with atopic dermatitis because of contact with the lesions of herpes simplex in a parent. For this reason contact with persons suffering from herpetic infections should be avoided.

SUMMARY

The orthodox methods of treatment which have proved most successful in the treatment of infantile eczema (atopic dermatitis) are briefly described.

The role of prophylaxis is considered.

The possible importance of house dust as an etiologic factor is discussed.

It is pointed out that warm clothing now made for children from cotton cloth with glass fiber insulation may prove useful for those who are sensitive to wool.

The importance of the routine immunization of children with atopic dermatitis to diphtheria, tetanus and pertussis is stressed. Suggestions are offered in case protection against the two latter has not been conferred.

The necessity of avoiding exposure of children with atopic dermatitis to fresh vaccination lesions and to herpetic lesions in other persons is explained.

ABSTRACT OF DISCUSSION

Dr. Rudolph L. Baer, New York: Dr. Glaser has covered not only the allergic factors but the important nonspecific and nonallergic factors which contribute to this disease. He called attention to the contactant allergenic factors which are frequently overlooked and which may be involved in addition to the inhalant and food factors. The skin of the infant and the young child is more easily penetrated from the outside than the skin of the adult; thus contactants have to be especially considered in these cases. I think that many cases of atopic dermatitis are made worse by exposure to wool; particularly in children wool often plays an important role. The eruption on the wrists so often seen in children with atopic dermatitis is frequently precipitated by the woolen sleeves. It appears probable that these lesions are due to a combined effect of an allergenic action and of friction.

Allergic factors are not the only ones and often not the most important ones in the aggravation of atopic dermatitis. The exact etiology and the mechanism of production of atopic dermatitis are not known. In a certain percentage of cases we cannot even demonstrate any of the features which characterize atopy such as the familial tendency to atopy, eosinophilia, immediate wheal responses to "protein" allergens or passive transfer antibodies. Because of this, nonallergic factors have to be considered. For example, soap, as Dr. Glaser mentioned, is important and should always be avoided, and soap substitutes should be used. Rapid changes in temperature and friction from clothing should be avoided. Excessively strenuous exercises, especially those leading to sweating, should be avoided. In the infant and in the child, as in the adult, itching is the major complaint, and itching is particularly severe in these cases. Stimuli which normally do not cause itching, such as friction, changes in temperature and small particles of clothing, cause severe itching and start up severe itch crises. To handle these cases properly we must take care of these nonallergic causal and contributory factors. In addition the proper topical dermatologic management as outlined by Dr. Glaser is extremely important.

DIGITOXIN INTOXICATION

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In his book on poisons, published in 1910, von Jaksch[1] stated:

> Digitalin and digitoxin are frightful cardiac poisons. Their use at the bedside necessitates the greatest care. A single excessive dose of these glycosides invariably results in death from cardiac paralysis in a short time. In clinical toxicology they play a subordinate role. If their use becomes widespread, then, unfortunately, they will become important.

I believe that digitoxin poisoning has now become so frequent an occurrence that it presents a real hazard.

During recent years there has been a resurgence of investigation to find a digitalis glycoside which is stable, of uniform strength, nonirritating to the stomach, readily absorbed from the gastrointestinal tract, quickly eliminated from the body and without excessive cumulative action. Lanatoside C ("cedilanid"),[2] digoxin U. S. P.,[3] strophanthin N. F.[4] and digitoxin U. S. P.[5] have their advocates. This paper will deal solely with digitoxin, including such preparations as "digitaline nativelle," "purodigen," "crystodigen" and the like.

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[30] "Hypertuss" can be obtained from the Cutter Laboratories, Berkeley, Calif.

[31] Obtained at the Philadelphia Serum Exchange, Philadelphia.

[32] Lynch, F. W.; Evans, C. A.; Bolin, V. S., and Steves, R. J.: Kaposi's Varicelliform Eruption, Arch. Dermat. & Syph. **51**:129 (Feb.) 1945.

[1] von Jaksch, R.: Die Vergiftungen, ed. 2, Vienna, Alfred Hölder, 1910, p. 524.

[2] Fahr, G., and LaDue, J.: A Preliminary Investigation of the Therapeutic Value of Lanatoside C (Digilanid C), Am. Heart J. **21**:133 (Feb.) 1941. Moe, G. K., and Visscher, M. B.: Studies on the Native Glucosides of Digitalis Lanata with Particular Reference to Their Effects upon Cardiac Efficiency and Their Toxicity, J. Pharmacol. & Exper. Therap. **64**:65 (Sept.) 1938. Nicholson, J. H.: The Intravenous Use of Lanatoside C, New England J. Med. **229**:619 (Oct. 14) 1943. Erickson, E. W.: Action of a Glucoside of Digitalis (Lanatoside C) on Organically Diseased but Objectively Compensated Hearts and on Normal Hearts, Proc. Staff Meet., Mayo Clin. **20**:283 (July 25) 1945.

[3] (*a*) DeGraff, A. C., and Batterman, R. C.: Recent Advances in Digitalis Therapy with Particular Attention to the Use of Pure Glycosides, M. Clin. North America **26**:929 (May) 1942. (*b*) DeGraff, A. C.: Clinical Comparison of the Cardiac Glycosides, New York State J. Med. **46**:1803 (Aug. 15) 1946. (*c*) Rose, O. A.; Batterman, R. C., and DeGraff, A. C.: Clinical Studies on Digoxin, a Purified Digitalis Glycoside, Am. Heart J. **24**:435 (Oct.) 1942. (*d*) Eichna, L. W., and Taube, H.: A Comparison of the Actions of Four Cardiac Glycosides on a Patient with Congestive Heart Failure, ibid. **26**:631 (Nov.) 1943.

[4] Kisch, B. Z.: Strophanthin, New York, Brooklyn Medical Press, 1944. Chavez, I.: Comparative Value of Digitalis and of Ouabain in the Treatment of Heart Failure, Arch. Int. Med. **72**:168 (Aug.) 1943.

[5] (*a*) Gold, H.; Kwit, H. T.; Cattell, M., and Travell, J.: Studies on Purified Digitalis Glycosides: IV The Single Dose Method of Digitalization, J. A. M. A. **119**:928 (July 18) 1942. (*b*) Gold, H.: Medical Progress: Problems in Digitalis Therapy, New York Med. **1**:17 (Oct. 5) 1945; (*c*) Pharmacologic Basis of Cardiac Therapy, J. A. M. A. **132**:547 (Nov. 9) 1946.

Gold[6] recommended a single full digitalizing dose of 1.2 mg. of digitoxin, followed by 0.2 mg. daily for maintenance. As a result of his reports, particularly those included in the Cornell Conferences on Therapy[5b, c] digitoxin has practically replaced digitalis U. S. P. (digitalis leaf). Although Gold stated that his recommended dosage applied to only three fourths of his series of patients, not only has his average dose been adopted indiscriminately for all patients, but, worse still, much larger doses are prescribed. The dangers attending the administration of digitoxin have been lost sight of, and the drug has been greatly abused.

The following cases of digitoxin poisoning will serve the purpose of this report which is to draw attention to the need of close supervision of patients receiving the drug.

REPORT OF CASES

Case 1.—A man aged 40 was admitted to the Mount Sinai Hospital on May 14, 1946, with a diagnosis of chronic rheumatic heart disease, mitral stenosis and insufficiency and severe heart failure. During the two preceding days he had received 1.8 mg. of digitoxin ("digitaline nativelle"); on the day of admission 0.2 mg. was given twice. He received 0.1 mg. daily for the next four days, that is, until May 19, when the drug was stopped because multifocal premature contractions were observed. He was discharged on June 8. The first electrocardiogram, taken May 17, disclosed auricular fibrillation, a ventricular rate of about 80 per minute, distinct depression of the RS-T segments and inversion of the T waves in the three standard leads. On May 20, complete heart block appeared, with a ventricular rate of 35 to 60 per minute, and bigeminal rhythm due to multifocal premature beats was also present. On May 29, ten days after cessation of therapy, the ventricular rate was still slow, 38 to 75 per minute; an occasional premature beat was present, and the RS-T segments and T waves were only slightly abnormal. Three days later bradycardia and premature beats were still exhibited.

Case 2.—A woman aged 47, was admitted to the Mount Sinai Hospital on Jan. 13, 1946 and died ten days later with severe heart failure. The diagnosis was chronic rheumatic heart disease with mitral stenosis and insufficiency. She was hospitalized because of blurred vision, nausea, diarrhea, restlessness, confusion and semistupor. During the eleven or twelve days prior to admission she had received 6.0 mg. of digitoxin (an average of 0.5 mg. daily), in spite of the fact that she had previously been taking 1½ grains (0.097 Gm.) of digitalis daily.

The first electrocardiogram January 14 revealed auricular fibrillation with bradycardia (55 beats a minute) and distinct depression of the RS-T segment in leads 1, 2 and 4. On January 23, the day of death, nodal tachycardia appeared, and there were many supraventricular premature contractions.

Case 3.—A frail woman, weighing 90 to 95 pounds (40.8 to 43.1 Kg.), was seen in consultation on Aug. 14, 1946 because of recurrent attacks of pulmonary edema. She had had an acute coronary occlusion seven years previously and was moderately hypertensive. She had received three to five doses of 0.4 mg. of digitoxin intravenously within twenty-four hours. The patient became nauseated and vomited continuously, but the pulmonary edema cleared up. She died the following day.

Case 4.—A man aged 53 was admitted to the Mount Sinai Hospital on May 10, 1946, because of severe heart failure. Auricular fibrillation (cause unknown), pulmonary edema and pulmonary infarct of the lower lobe of the right lung were present. On the first day he received 1.8 mg. of digitoxin and the next day 0.4 mg., a total of 2.2 mg. within thirty hours. He died on the fourth day, May 13.

The electrocardiograms, taken May 10 and 11, disclosed auricular fibrillation with a ventricular rate of 200 beats per minute. On May 12, ventricular tachycardia had appeared, and electrical alternans and bidirectional ventricular premature beats were present. On May 13, the day the patient died, the auricular fibrillation reappeared, and the ventricular rate was approximately 180 beats a minute.

Case 5.—A man aged 38 had received 0.1 mg. of digitoxin ("purodigin") daily during January 1946 as a prophylactic measure against paroxysmal auricular flutter. He weighed 150 pounds (68 Kg.). When I saw him on February 16, he complained of yellow vision, abdominal cramps and bouts of diarrhea. The drug was discontinued and these symptoms disappeared. During the next two months digitoxin ("digitaline nativelle") was given intermittently in the same dose, 0.1 mg. daily, always with a return of visual and abdominal complaints. Electrocardiograms revealed auricular flutter, auricular tachycardia or partial heart block with dropped beats, but with a ventricular rate between 120 and 150 per minute.

Case 6.—A woman aged 59 had been operated on in 1945 for intestinal carcinoma. On Nov. 8, 1946 she had onset of pain in the upper part of the abdomen, which was interpreted as due to coronary disease. She was placed under treatment with digitoxin ("crystodigin") for one week, but the dose of this drug could not definitely be ascertained. There developed paroxysmal auricular fibrillation for one day, and the drug was stopped. On November 24 there was recurrence of pain. Although the patient weighed only 95 pounds (43.1 Kg.), she received 0.2 to 0.4 mg. of digitoxin daily. She became restless, disoriented and nauseated and vomited repeatedly. Leukocytosis, with a count of 11,000 to 13,000, developed, with a temperature of 102 to 102.5 F. Neurologists were called in for consultation but could find no evidence of organic cerebral involvement.

I saw the patient on December 12 and made a diagnosis of digitalis intoxication with digitalis psychosis. There was no evidence of heart failure or cardiac enlargement. The rhythm was irregular and rapid. Administration of the digitoxin was discontinued, but evidence of poisoning persisted in the electrocardiogram for three weeks.

The electrocardiogram taken on November 28 (fig. 1 *A*) showed sinus tachycardia, with a rate of 155 per minute, RS-T depressions and inversions of the T waves in leads 1, 2 and 4. On December 12 (fig. 1 *B*) there was partial heart block with dropped beats, i.e., Wenckebach periods, the ventricular rate being 115 to 120 a minute, and RS-T depressions and inversions of the T waves in leads 1, 2 and 4. Digitoxin was discontinued. The tracing of December 15 (fig. 2 *A*) still revealed a 2:1 heart block with dramatic depressions of the RS-T segments and pronounced inversions of the T waves in all leads. On December 18 (fig. 2 *B*) sinus tachycardia alternated with 2:1 heart block, but the RS-T depressions and inversions of the T waves were not quite so pronounced. On December 28 (fig.

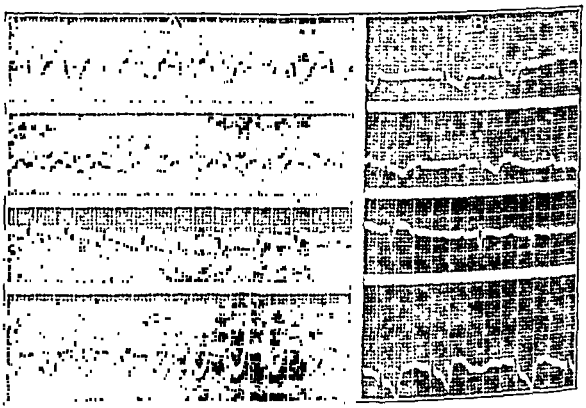

Fig. 1.—The tracings in this figure and in figures 2 and 3 are those of a woman aged 59, weighing 95 pounds (68.1 Kg.) with digitoxin intoxication. *A* (11/28/46), after administration of digitoxin, 0.2 to 0.4 mg. daily for five days, showing sinus tachycardia, with a rate of 155 per minute, and depression of the RS-T segments in leads 1, 2 and 4 and inverted T waves. *B* (12/12/46), after administration of digitoxin, 0.2 to 0.4 mg. daily for nineteen days. There were partial heart block (Wenckebach periods) with dropped beats, a ventricular rate of about 115 per minute and depression of the RS-T segments with inversions of the T waves in leads 1, 2 and 4. Digitoxin was discontinued.

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6. Gold.[5c] Conferences on Therapy: Use of Digitalis, New York State J. Med. **42:** 2043 (Nov. 1) 1942; Digitalis Versus Digitoxin, ibid. **45:** 1676 (Aug. 1) 1945.

(3*A*) sinus tachycardia, with a rate of 120 a minute, was present, with the T wave semi-inverted in leads 1 and 2. On January 13 (fig. 3*B*) the electrocardiogram was normal with regular sinus rhythm (rate, 95 a minute).

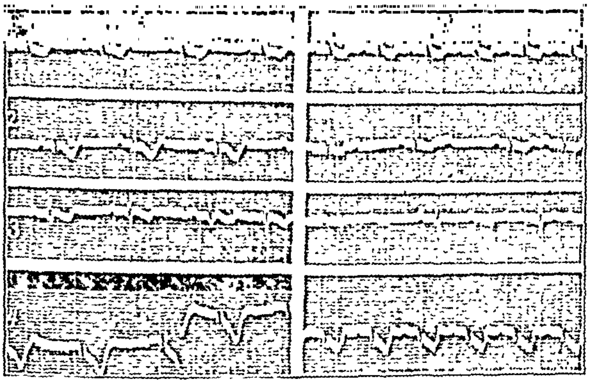

Fig. 2.—*A* (12/15/46), 2:1 heart block, with depression of the RS-T segments and inversions of the T waves in all leads. *B* (12/18/46), sinus tachycardia alternating with 2:1 heart block. The depressions of the RS-T segments and inversions of the T waves are not quite so pronounced.

Subsequent observation of the patient confirmed the impression that she did not have any organic heart disease. Thus, the cerebral symptoms and the arrhythmias were unquestionably produced by the digitoxin, and not by myocardial disease.

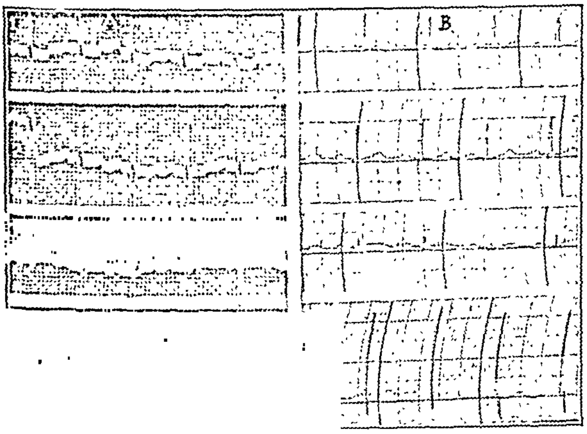

Fig. 3.—*A* (12/28/46), sinus tachycardia, with a rate of 120. The T waves in leads 1 and 2 are still semi-inverted. *B* (1/13/47), normal sinus rhythm, with a rate of 95. The tracing is now normal.

Case 7.—A woman aged 71 was admitted to the Mount Sinai Hospital on May 8, 1946 for hypertensive vascular disease with heart failure. Digitalis had been prescribed before her admission, but the type and quantity of the drug were not ascertained. Although the patient weighed only 96 pounds (43.5 Kg.), she received 0.1 mg. of digitoxin daily, and occasionally 0.2 mg. Anorexia, nausea and vomiting developed. The drug was finally stopped on June 14. She was discharged on June 18.

The electrocardiogram on May 10 disclosed inverted T waves in lead 1 and supraventricular premature beats. The rate was 80 a minute. On June 12 there were numerous multifocal and bidirectional premature beats, with a rate of 150 a minute.

Case 8.—A woman aged 60 was admitted to the Mount Sinai Hospital on Jan. 31, 1947 and died February 8. On admission she had severe epigastric pain, nausea and vomiting. Examination revealed mild fever, moderate leukocytosis, hypertension and, on the seventh day, definite evidence of heart failure. The electrocardiogram was typical of acute coronary occlusion with infarction of the anterior wall. Injections of mercury being unsuccessful, on the eighth day 0.8 mg. of digitoxin was administered intravenously, and the patient died one minute later.

In this case the patient's acutely damaged myocardium undoubtedly increased her susceptibility to digitoxin.

Case 9.—A man aged 59 had a history of acute coronary occlusion nine years prior to the present admission and heart failure six years later. Although he had received digitalis and mercurial injections, this medication was discontinued six weeks before his admission to the Mount Sinai Hospital, on Feb. 25, 1947.

He was dyspneic and orthopneic, with pulmonary congestion and venous distention, enlargement of the liver and edema of the ankles. On the evening of admission he received 1.2 mg. of digitoxin orally and 2 cc. of meralluride N. N. R. ("mercuhydrin") intramuscularly. An electrocardiogram taken the following day revealed complete heart block and auricular tachycardia, with an auricular rate of 150 to 155 and a ventricular rate of 80 per minute. Furthermore, there were numerous ventricular premature contractions, often producing bigeminy. Clinically, the patient exhibited no manifestations of digitalis poisoning, but, of course, the digitoxin was discontinued. On February 27 the auriculoventricular dissociation was still present, with periods of 2:1 block. Sinus rhythm was observed the next day, but the P-R interval was prolonged to 0.28 second.

In this case the single oral dose of 1.2 mg. of digitoxin was excessive. The only evidence of digitoxin intoxication appeared in the electrocardiogram.

The symptoms of digitoxin poisoning, as observed in the foregoing cases, do not differ from poisoning with other types of digitalis. Since digitoxin has a definite cumulative action,[7] the toxicity persists longer than that after other preparations of digitalis. Hence, great caution is necessary in its administration. If the method outlined by Gold and his co-workers for the use of digitoxin were followed in detail, the adverse effects so frequently encountered would probably be lessened. These authors pointed out that their dose was an average one and did not apply to all patients, a fact often overlooked. Relatively larger doses of digitoxin than of digitalis U. S. P. (digitalis leaf) are prescribed because the dose of the former seems so small. Digitoxin is prescribed in decimals of a milligram, just one-thousandth the strength of the dose in which digitalis U. S. P. is given—namely, in decimals of a gram.

Although the danger of the relatively long latent period and cumulative action or slow dissipation of digitoxin is real, I believe that many, if not all, of the untoward effects of this drug have resulted from its careless, haphazard use. The dosage of 1.2 mg. as a single average digitalizing dose and of 0.2 mg. for maintenance has often been indiscriminately applied to patients regardless of weight, without proper surveillance of the patient and without awareness of the dangers involved in using the drug. A patient weighing only 95 pounds (43.1 Kg.) is often given the same dose —0.2 mg. daily—as is one who weighs 150 to 225 pounds (68 to 102 Kg.). In this regard it is probably significant that the Varick Company, which markets "digitaline nativelle," used to advertise 0.1 mg., and not 0.2 mg., as the average daily maintenance dose, but recently has altered its advertisement and gives the maintenance daily dose as varying between 0.05 and 0.2 mg. Unless each patient is treated individually and the proper dose carefully determined, it is safer to use digitalis U. S. P. than digitoxin.

SUMMARY

Digitoxin has practically replaced digitalis U. S. P. (digitalis leaf), but the dangerous aspects of its administration have been disregarded and digitoxin intoxication has become frequent.

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[7] DeGraff and Batterman.[2a] Hoffmann, A.: Funktionelle Diagnostik und Therapie der Erkrankungen des Herzens und der Gefässe, Wiesbaden, J. F. Bergmann, 1911, p. 412.

Clinical observations confirm the pharmacologic fact that digitoxin has the greatest cumulative action (slowest dissipation) of all the glycosides.

Nine cases of digitoxin intoxication are reported. The symptoms included nausea, vomiting, blurred and yellow vision, abdominal cramps, diarrhea, restlessness, mental confusion, disorientation and psychosis. Premature contractions, bigeminy, trigeminy and multifocal bidirectional premature beats; tachycardias of auricular, nodal and ventricular origin with rapid ventricular rates; auricular fibrillation and auricular flutter; partial and complete heart block, and electrical alternans were observed.

Since the therapeutic dose of all digitalis drugs is 50 to 60 per cent of the toxic dose, a relatively small additional amount may be sufficient to cause a toxic reaction. The administration of digitoxin, like that of any other preparation of digitalis, because of the variability in absorption, excretion and therapeutic effect, is an individual experiment.

The dosage of 1.2 mg. as a single digitalizing dose and of 0.2 mg. for maintenance has often been applied indiscriminately to patients regardless of weight, without proper surveillance of the patient and without awareness of the dangers involved in using the drug. It must be remembered that the daily maintenance dose of digitoxin varies from 0.05 to 0.2 mg.

Council on Physical Medicine

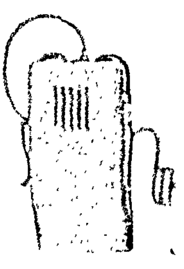
The Council on Physical Medicine has authorized publication of the following report. Howard A. Carter, *Secretary.*

WESTERN ELECTRIC HEARING AIDS, MODELS 65 AND 66, ACCEPTABLE

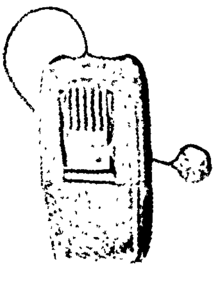
Manufacturer: Western Electric Company, Inc., 120 Broadway, New York 5.

MODEL 65

As exemplified by instrument A 0023, Model 65 is a self-contained hearing aid encased in plastic. A hinged cover gives access to the battery compartment, which is at the back of the case. It is connected to the magnetic receiver by a plastic-covered cord with plugs at both ends. Two receivers were supplied.



WESTERN ELECTRIC MODEL 65



WESTERN ELECTRIC MODEL 66

Two wheel-type controls are placed at the top of the instrument. One is the volume control, the other is a combination switch tone control and gives three tone settings. On each side of the instrument wearing clips are so placed that the opening of the microphone will be above the edge of the pocket.

The following data were obtained by a Council investigator: *Dimensions and Weight.*—Dimensions: Length 10.9 cm. (4⅓ inches); thickness 2.1 cm. (8⁄10 inch), and width 6.2 cm. (2½ inches). Weight: 172 Gm. (6 ounces).

Battery Data.—Usable Batteries: A, 1½ volts; B, 15 volts.

Battery Drain Measurements

Battery	Voltage	Current
A	1.4 volts	42 milliamperes
B (Quiet)	15 volts	0.46 milliampere
(Squealing)	15 volts	0.24 milliampere

Acoustical Gain.—Measurements were made of the acoustic gain in decibels. This is the decibel difference between the sound pressure at the face of the microphone of the instrument and the pressure produced by the receiver in the 2 cc. coupler. The pressure at the face of the microphone was held at approximately 55 decibels above zero level for these measurements (55 db. above 0.0002 dyne/sq. cm.). Following is a tabulation of typical acoustical gains:

		Frequencies							
Volume	Tone	256	512	1,024	1,200	2,250	3,100	4,096	Receiver
Full	1 dot	13	23	36	37	47	35	17	724 B
Full	3 dots	28	39	47	48	53	40	20	724 B
Full	3 dots	30	42	54	60	55	42	25	724 A

Below are approximate values of maximum sound pressure levels (at four frequencies) set up in the 2 cc. coupler with the volume set for full gain and tone setting at 3 dots:

Frequency	Input Level	Maximum Output Level
600 cycles	80 db.	124 db.
1,024 cycles	70 db.	121 db.
1,200 cycles	70 db.	129 db.
2,048 cycles	65 db.	116 db.

Intelligibility tests were made with a person of normal hearing seated inside a booth giving about a 30 decibel sound reduction. The speaking person was outside the booth using normal speaking voice. Score made with the Harvard number 9 lists under these critical conditions was 70 per cent.

MODEL 66

As exemplified by instrument B 1165, Model 66 is a self-contained hearing aid encased in plastic. The removable lower half of the case is the battery housing. Connections with the magnetic receiver are by a plastic-covered cord with plugs at both ends. Two receivers were supplied with the instrument.

At the top of the case are two wheel-type controls, of which one is the volume control. The other is a combination switch tone control giving three tone positions. A wearing clip on the front of the case is placed so that the opening of the microphone will be above the edge of the pocket.

Dimensions and Weight—Dimensions: length 12.5 cm. (5 inches); thickness 3.8 cm. (1½ inches), and width 6.5 cm. (2¾ inches). Weight: 250 Gm. (9 ounces).

Battery Data.—Usable Batteries: A, 1½ volts; B, 22 volts.

Battery Drain Measurements

Battery	Voltage	Current
A	1.35 volts	42. milliamperes
B (Quiet)	21.8 volts	0.72 milliampere
(Squealing)	21.8 volts	0.52 milliampere

Acoustical Gain.—Measurements were made of the acoustic gain in decibels. This is the decibel difference between the sound pressure at the face of the microphone of the instrument and the pressure produced by the receiver in the 2 cc. coupler. The pressure at the face of the microphone was held at approximately 55 decibels above zero level for these measurements (55 db. above 0.0002 dyne/sq. cm.). Following is a tabulation of typical acoustical gains:

		Frequencies							
Volume	Tone	256	512	1,024	1,200	2,250	3,100	4,096	Receiver
Full	1 dot	14	26	32	34	41	40	34	724 C
Full	3 dots	44	51	50	50	50	47	40	724 C
Full	3 dots	49	58	67	72	63	48	31	724 A

Below are approximate values of maximum sound pressure levels (at four frequencies) set up in the 2 cc. coupler with the volume set for full gain and tone setting at 3 dots.

Frequency	Input Level	Maximum Output Level
600 cycles	75 db.	129 db.
1,024 cycles	65 db.	130 db.
1,200 cycles	65 db.	135 db.
2,048 cycles	70 db.	123 db.

Intelligibility tests were made with a person of normal hearing seated inside a booth giving about a 30 decibel sound reduction. The speaking person was outside the booth using a normal speaking voice. Score made with the Harvard number 9 lists under these critical conditions was 60 per cent.

The Council on Physical Medicine voted to include the Western Electric Hearing Aids, Models 65 and 66, in the list of accepted devices.

MAICO STETHETRON ACCEPTABLE

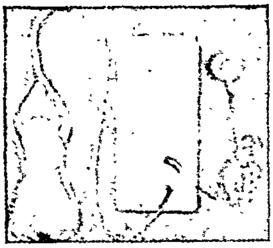
Manufacturer: Maico Company, Inc., 21 North Third Street, Minneapolis.

The Maico Stethetron consists essentially of three parts: (1) a receiving or auscultating part intended to be placed in contact with the patient's chest or other structure to be auscultated, (2) a case housing the amplifying apparatus and (3) the familiar V shaped binaural arrangement of tubing to convey the amplified sounds to the physicians' ears. The three parts are all contained in a leather carrying-case whose over-all dimensions do not exceed 21.2 by 9.8 by 4.4 cm. (8⅜ by 3⅞ by 1¾ inches). The amplifying apparatus is said by the company to include tubes which are high gain hearing aid pentodes, and the output tube is stated to be capable of delivering 10 milliwatts of audio power.

The apparatus as a whole may be described as an electronic stethoscope and is designed to amplify the sounds ordinarily heard in auscultation; it is intended to aid physicians who are hard of hearing and students who are learning to auscultate.

The pickup is designed primarily to change cardiac and pulmonary sounds into electrical voltages by means of a piezoelectric crystal. The pickup is stated to be highly sensitive to vibrations produced by body sounds but relatively insensitive to airborne or acoustical vibrations. The electric impulses are amplified and then converted into acoustical vibrations by a dynamic transducer. The output of the transducer is fed into a binaural headset so that the amplified heart sounds reach the physicians' ears in the same manner as they would through an ordinary stethoscope.

The electrical power gain of the Stethetron is stated to be about 90 decibels. The power is supplied by an A battery of 1½ volts and a B battery of 45 volts. The average current drain on the A battery is about 80 milliamperes, and with normal use it is expected to last about one hundred hours. The average current drain on the B battery is about 2 milliamperes, and with normal use it is expected to last about two hundred and fifty hours.



THE MAICO STETHETRON.

Since the impairment of hearing is generally not uniform through the range of audible frequencies, and since the pattern of impairment varies from one user to another, the Stethetron is provided with a tone control, or emphasis filter, giving six possible positions. The green dot position of the emphasis filter attenuates the lower frequencies, thereby emphasizing sounds of systolic and diastolic murmurs. The red dot position disconnects the emphasis filter entirely, giving a fairly uniform response from 50 to 1,000 cycles per second, for listening to peristaltic sounds and respiratory sounds. The blue dot position emphasizes frequencies around 250 cycles per second. The yellow position emphasizes frequencies around 175 cycles per second. The white dot position emphasizes frequencies around 125 cycles per second, suitable for listening to presystolic murmurs. The black dot position emphasizes frequencies around 90 cycles per second and is used for systolic and diastolic sounds.

Additional possibilities of this instrument are as follows: 1. A booster unit, consisting of a battery-operated amplifier, can be connected to permit simultaneous listening by from six to twelve physicians or students. 2. A record-playing attachment is available. 3. The output terminals of the Stethetron can be connected to the input terminals of an oscilloscope. 4. It is possible to connect the instrument to a loudspeaker for classroom purposes. 5. Permanent records can be made by using direct-inking equipment, tape recorders and wire recorders.

The device was used and studied by a number of physicians, who submitted reports to the Council. The consensus was that the instrument is effective as an aid to physicians who are hard of hearing. While there was no doubt expressed as to its value as a teaching appliance when used in conjunction with some of the aforementioned accessories, there was disagreement as to its value in teaching actual auscultation to the medical student or in discriminating (by the use of the tone control, or emphasis-filter) between sounds of different quality.

The Council on Physical Medicine voted to include the Maico Stethetron in its list of accepted devices.

Clinical Notes, Suggestions and New Instruments

CONTACT DERMATITIS DUE TO "FINGER PAINTS"

NORMAN TOBIAS, M. D.
St. Louis

The literature does not disclose any reports of contact dermatitis due to "finger paints." Finger paints are creamy paints which are sold in sets of six colors and which when applied to a special wetted paper with the fingers or forearms result in an unusual tinctorial effect. The designs or patterns may be changed by blending the various colors. The product is popular with children and has been used by adults as a form of occupational therapy. A case is reported in a boy who had contact dermatitis from the paint on his face, fingers and forearms. The manufacturer did not reply to the letter requesting information regarding the formula, so that the particular sensitizer is not known at this time.

Some cases are probably being diagnosed as poison ivy dermatitis or even erysipelas by general practitioners who are unfamiliar with this contactant.

Report of Case

J. K., aged 8, had an acute erythematovesicular dermatitis in the interdigital spaces of his right hand four days after first using the finger paint; the dermatitis appeared on the dorsal surface the next day. Three days later a similar eruption, patchy and linear in character, appeared on the right cheek, midforehead and left forearm. Mild itching was present. The paints were used about fifteen minutes daily. Although the preparation is easily washed off with water, the boy had apparently rubbed his face with his fingers, which explains the eruption on the cheek and forehead. The patch on the left forearm was caused by using that part to rub the paints on the paper.

A patch test with the red paint was applied to the left arm the day after consultation. Within twenty-four hours, there was a 3 plus reaction. Patch tests on 3 normal controls were negative in result. Treatment consisted of a mild astringent lotion, with complete recovery within a week.

Summary and Conclusions

The exact sensitizer or sensitizers in the finger paint were not determined. It is possible that a plasticizer may be causative. Schwartz[1] stated that "a great many pigments are used in paint but they are rarely the cause of dermatoses."

From the Department of Dermatology and Syphilology, St. Mary's Group of Hospitals, St. Louis University School of Medicine, Dr. G. V. Stryker, Director.

[1] Schwartz, L.; Tulipan, L. and Peck, S. M.: Occupational Disease of the Skin, Philadelphia, Lea & Febiger, 1947.

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SATURDAY, JUNE 5, 1948

EDITORIAL ANNOUNCEMENT

The absence of the compositors from their work continues. This issue of THE JOURNAL has been prepared in part by the use of Vari-Typer machines.

THE BROOKINGS REPORT ON COMPULSORY HEALTH INSURANCE

When the Congress passed the Social Security Act, provisions were made for the regular expenditure of governmental funds in the study of medical care. The misuse and abuse associated with such expenditures under the administration of Isidore Falk, who is responsible to Mr. Altmeyer and the Federal Security Administrator, has been so frequently described that repetition would be boresome. What should have been a scientific investigative agency has been perverted into a group who manipulated statistics and assembled data for propaganda purposes. After many years investigations have been made by congressional committees and other groups. Eventually, no doubt, this particular " chicken will come home to roost. "

Recently the Senatorial Subcommittee on Health of the Senate Committee on Labor and Public Welfare requested the Brookings Institution, a nonprofit agency which has functioned for many years on an independent basis, to make a study of compulsory health insurance, as the committee was concerned with several bills on this subject. The conclusions and recommendations have been furnished to the Senate committee. The Brookings Institution decided, because of the wide public interest in the subject, to make the full study available in printed form. The report is made by Dr. George W. Bachman and Dr. Lewis Meriam. Dr. Bachman has had wide experience in experimental medicine and public health on the faculties of Chicago, Johns Hopkins and Columbia universities and for eleven years directed the School of Tropical Medicine in Puerto Rico. Dr. Meriam's previous work in the Census and Children's bureaus, in a survey of the Indian Administration and in many studies of state government, relief and social security, indicates his qualification for the task. With these two leaders several staff members of great repute were associated. Every physician should secure and study this important book.

The report defines the two major plans now under consideration by the national government: the grants-in-aid plan and the compulsory health insurance plan. First to be answered is the common question, " How bad are health conditions in the United States?" Comparisons are made with other countries as well as comparisons between the individual states. The draft data have been studied, and consideration has been given to the effects of various systems on the practice of medicine and on the cost of medical care. The investigators were also concerned with the availability of medical personnel, with administrative costs and many related problems. As a result of the analysis of a vast amount of carefully developed evidence, positive answers are made to many controversial questions.

A study of mortality rates throughout the world has warranted three conclusions: (1) that the United States had made enormous advances since the turn of the century; (2) that it is now among the most healthful nations of the world, and (3) that its white population is fast approaching, if it has not already reached, the point at which the rate of advance will be much retarded. The significance of these conclusions cannot be overestimated.

Here is the answer to the continuous reiteration by propaganda groups that various nations are superior to the United States in maternal and infant mortality, or that there are great areas of our nation without adequate medical care, or that we are clearly outclassed by New Zealand or Denmark or some other small country that either has a homogeneous population or does not count its native population. The figures indicate that our white population has reached such a high record as regards its health that further reduction in death rates is going to be exceedingly difficult and perhaps impossible.

Again it becomes clear that the mortality rates among the nonwhite persons are unfavorable. However, the Brookings report brings out that more and better medical care is not the only requirement. In fact the advantages to be gained by more and better medical care

are minor as contrasted with improvements in economic, educational, cultural and social conditions needed by our colored populations.

In this Brookings report is another analysis of the Selective Service statistics. For some years the proponents of compulsory sickness insurance and state medicine have been reiterating to the point of monotony the argument that Selective Service statistics indicate that we are a nation of weaklings with millions of young men incapable of rendering military service and with millions suffering from preventable and curable defects. A careful study by Friedman in Washington was the first important and devastating blow to these arguments and to the parrot-like mutterings made by the inside ring of the Committee on the Nation's Health that used them for propaganda. Now comes this study of the Brookings Institution with an analysis which proves that the Selective Service statistics actually demonstrated the exceedingly high quality of medical care in our country. The Selective Service statistics are not helpful in any consideration of proposals to alter arrangements for the provision of individual medical care. A special chapter on the subject comes to a conclusion worthy of quotation:

> Medical care, however adequate, cannot prevent certain diseases, conditions, or impairments. It cannot invariably effect a cure or restoration that will bring the individual up to or above the minimum standard for rigorous physical activity such as that used for the armed forces. It may and does enable the victims of accidents and many diseases to live and to support themselves and those dependent upon them. It seems almost certain that the better the medical care in a country the larger the number of its people who will be living despite accidents, illnesses, and impairments. A Spartan program of eliminating the physically and mentally unfit would yield a higher percentage suitable for military service than would a program of doing everything possible through medical care to preserve life and to enable persons to make that life worth while, despite conditions that make them ineligible for military service.

The attention of the Brookings group is turned to some of the so-called health surveys that have been made since 1930 with a view to determining the nature, distribution and cost of medical care in the United States. One analysis concerns the investigation made under the Committee on the Costs of Medical Care, which have constituted a sort of bible for most of the proponents of compulsory sickness insurance. There was no scientific objective standard of what constituted an illness or a condition which required treatment which was applied to all regardless of income. Attention is also given to the National Health Survey which was conducted by the Works Progress Administration under the auspices of the United States Public Health Service. A single sentence seems to define the failure of that survey for all practical purposes. The sentence concerns persons with incomes under $1,000 or those on relief: "It is difficult to determine whether their poverty was due to their illness or their illness due to their poverty."

The Brookings report also sets forth the basic arguments for and against voluntary sickness insurance and compulsory insurance. Its conclusions are so important that they are here quoted in full:

> 1. Probably no great nation in the world has among its white population better health than prevails in the United States. A few small homogeneous countries, such as New Zealand with respect to its white population, are slightly ahead of the United States, as a whole, but certain states of the United States with larger populations equal them.
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> 2. It is apparent that the United States under its voluntary system of medical care has made greater progress in the application of medical and sanitary science than any other country. This progress is now reflected in low mortality and morbidity rates of infectious diseases and in increased life expectancy. There is every reason to believe that these trends will continue unabated under our present system of medical care.
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> 3. The nonwhites in the United States have materially poorer health than the whites, but the evidence does not indicate that this condition is primarily or even mainly due to inadequacy of medical care.
>
> 4. The advances in health among both the whites and the nonwhites that have been made in the United States in the past four decades do not suggest basic defects in the American system.
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> 5. Although the statistics resulting from the administration of the Selective Service Act—the so-called draft statistics—have been widely used to show bad health among the American people and the need for revolutionary changes in arrangements for medical care of individuals, they are unreliable as a measure of the health of the nation and cannot be used to show the extent of the medical needs of the country as a whole.
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> 6. Present medical care in the United States compares favorably with that which existed in other leading nations prior to the second World War.
>
> 7. The conditions in extremely poor rural areas that lack the resources to support adequate public services, such as health work, education, and highways, cannot be satisfactorily solved by subsidies. This problem calls for a radically different approach, either bringing in new or improved economic activities or getting the people to more favorable and administratively less expensive areas. This condition has been accentuated by the emigration of youth from these areas to urban communities.
>
> 8. The United States has some individuals and families not possessed of the resources to enable them to pay for adequate medical care. In the future, as in the past, provision must be made for them through public funds or philanthropy. The evidence suggests that many of them are elderly, impaired or underendowed or are widows or deserted women or their dependents. It is doubtful that they could be effectively covered by compulsory insurance because they would lack the means to attain and maintain an insured status. The large majority

of American families have the resources to pay for adequate medical care if they elect to give it a high priority among the several objects of expenditure. The issue is not whether they can afford medical care but whether they should be compelled by law to pool their risks and to give payment for medical care a top priority. The major alternative for people with ability to pay is to leave them free to determine for themselves what medical care they desire and whether they will pool their risks through voluntary arrangements.

9. Compulsory health insurance would necessitate a high degree of governmental regulation and control over the personnel and the agencies engaged in providing medical care. This field of regulation and control would be far more difficult than any other field previously entered by the government, and past experience with governmental regulations and control in the United States causes doubt as to whether it encourages initiative and development.

10. The problem of eliminating politics from government administration is extremely difficult. It does not seem probable that politics could be eliminated from medical care supplied under a governmental system.

11. Compulsory insurance would inject the government into the relationship between practitioner and patient. A real danger exists that government actions would impair that relationship and hence the quality of medical care.

12. The administration of compulsory insurance would require thousands of government employees for accounting, auditing, and inspection and investigation.

13. The cost of medical care presumably would increase because of (*a*) administrative expenses; (*b*) the tendency of insured persons to make unnecessary and often unreasonable demands upon the medical care services; and (*c*) the tendency of some practitioners and agencies to use the system for their own financial advantage.

14. The adoption of compulsory insurance would not immediately make available adequate medical service for all, because there are not at present the facilities nor a sufficient number of trained and experienced physicians, dentists, and nurses to meet the demand which would result from compulsory insurance.

15. Proposals for compulsory insurance provide for payment of practitioners under one or all of three methods: (*a*) fee for service, (*b*) per capita, or (*c*) salary. Use of the fee-for-service device represents the minimum degree of socialization, but it is administratively difficult. Administrative difficulties would probably result in the adoption of the per-capita system which represents a higher degree of socialization or even in the salary system which represents practically complete socialization. It seems questionable whether a country which once embarks on compulsory insurance can turn back but must attempt to remedy defects by more complete government control and administration.

As a result of these studies and the conclusions reached, the report of the Brookings Institution says that the national government would be wise to leave to the individual states the question of whether compulsory health insurance is to be adopted or whether the provision of professional services is to be left in the realm of free enterprise. They believe it is highly improbable that experimentation with a variety of plans will ultimately develop a single pattern applicable to all sections of the country. For the time being, the report suggests, the national government and many of the state governments may well devote their resources and energies to:

a. Research and developments in the fields of public health.
b. Health education at the school level.
c. Teaching of preventive medicine.
d. Assisting in the acquisition of physical facilities and training of personnel.
e. Providing systematic care for the indigent and the medically indigent.

Especially important, however, is a recommendation from the point of view of the proper place of government in educating the public with regard to medical care. Recommendation no. 3 says:

> From the standpoint of public relations, governments might be well advised to leave adult educational campaigns for the control and prevention of disease to the national, state, and local voluntary organizations, which have been able to enlist the active cooperation of leading laymen in most sections of the country. It must be remembered that good health is not exclusively a matter of medical care; it also impinges upon causative factors that are nonmedical, such as food, shelter, vice and crime, transportation, and industry. Its maintenance depends also upon the intelligence, interest, and cooperation of individuals, families, and local communities.

Finally, an analysis is made of the changes that have taken place in the United States since 1932 in medical care, and here is the concluding paragraph:

> The experience of the United States since 1932 seems to have demonstrated the wisdom of these recommendations of the majority of the members of the Committee on the Costs of Medical Care. It would seem unwise at this time to substitute for these developments a system of compulsory health insurance by national law which would have the unfortunate tendency to freeze policies and eventually retard medical progress.

When the original report of the Committee on the Cost of Medical Care appeared in 1932 THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION urged evolution. The majority of the Committee on the Cost of Medical Care did not at that time recommend compulsory sickness insurance although they did say that " such a step may ultimately be necessary and desirable in some states."

Notwithstanding the recommendations of even the majority of the Committee on the Cost of Medical Care, agencies devoted to propaganda have consistently and persistently since that time urged a nationwide state-controlled compulsory sickness insurance. Even at this very moment these agencies are vociferous in their arguments and have the support of President Harry S. Truman. Moreover, as has already been mentioned, the agency for the study of medical care in the Federal Security Agency has been from the first an agency of propaganda rather than an agency for scientific study. The report on " The Issue of Compulsory Health Insurance " by George W.

Bachman and Lewis Meriam, published by the Brookings Institution, should bring a blush of shame to the cheeks of even these hardened advocates of government medicine. Surely they will recognize now the difference between a scientific objective study of dependable evidence and the kind of promotional publicity that they have been turning out in pseudo-scientific documents since they first began collecting a living from government sources.

Current Comment

PSYCHOTHERAPY

Several much discussed and little understood basic theories underlying psychotherapy have recently been discussed by Karpman,[1] who calls attention to three concepts. Conventional psychiatry still emphasizes the physical approach and looks for physical factors which may explain or be responsible for so-called functional mental diseases. Psychopathology also moves essentially along the level of conventional psychiatry, emphasizing the importance of personality without giving clues to the origins of personality make-up and resources. The psychodynamic approach works primarily with the patient as an individual, centering the entire weight of treatment on him rather than on the external environment. The psychodynamic approach cannot be satisfied with mere observation and interview but goes beyond in an attempt to find basic causations. All that is obtained on a conscious or intellectual basis is disregarded, and only unconscious material obtained through free association and dream analysis is considered. Minor psychotherapy is practiced chiefly by physicians who are committed to the organic approach and who are unwilling or unable to see the psychodynamics back of mental disease. They fail to understand the manifestations of the unconscious, the psychic mechanisms and processes and the role that symbolization plays in our lives. Major psychotherapy (psychoanalysis) presents fundamental differences from other psychiatric disciplines, being oriented in psychodynamics which recognizes the unconscious as the most dynamic aspect of life. Psychodynamics demonstrates how the principles of homeostasis are applied in our psychic life, as instanced by the pleasure-pain principle, the elucidation of emotions as energy manifestations flowing out of instincts and the importance of increasing depth of insight. Finally, psychodynamics is stated to be in a position to make definite contributions to other sciences such as physics, pathology, sociology and the humanities in general. Frequently the advancement of knowledge gains by review and analysis of current practices. The contribution of Karpman will inspire psychiatrists to evaluate more closely the technics they now employ.

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[1] Karpman, B.: Psychotherapy, Minor and Major, Quart. Rev. Psychiat. & Neurol. 2:553-579 (Oct.) 1947.

CHEMOTHERAPY OF LEUKEMIA

The cytotoxic action of urethane (ethyl carbamate) and of mustard gases in animals led to experiments with these substances in animal tumors and the treatment of human leukemia and other neoplastic diseases. Many reports on the results of this chemotherapy have been published.[1] Hirschboeck and associates[2] have reviewed the clinical reports and submitted an instructive discussion. In chronic myeloid leukemia and to a lesser degree in lymphatic leukemia urethane in proper doses decreases not only the lymphocytes in the blood but also the size of lymph nodes, spleen and liver. Studies are lacking of these organs and of the marrow in patients treated with urethane. Thus far apparent cure of leukemia by urethane has not been recorded. The reduction in white blood cells, especially lymphocytes, and other substantial palliative effects appear to have been temporary only.[3] The use of urethane is not without danger, as yet the best dosage and methods of administration under different conditions have not been worked out fully. Like arsenical compounds, urethane may be of use as an adjunct to roentgen therapy in myelogenous leukemia. With nitrogen mustard gas Alpert and Peterson[4] obtained results against Hodgkin's disease and lymphosarcoma which they classified as spectacular, fairly good and poor. In the favorable cases recurrence was common. The remissions under chemotherapy in leukemia, lymphosarcoma and other cancers are of great scientific interest and present openings for further research. Certainly the actions of nitrogen mustard and also of urethane as adjuncts to roentgen treatment in Hodgkin's disease invite careful investigation. From a review of clinical and experimental work with the nitrogen mustards Rhoads[5] concludes that in the nitrogen mustards there is available a chemical tool by which can be obtained in Hodgkin's disease and certain cases of lymphosarcoma results about as good as, but not much better than, those obtained by x-ray. Perhaps new chemical agents will be found which may be more effective than those now under study.

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[1] Moulton, F.R.: Approaches to Tumor Chemotherapy, Washington, D.C., American Association for the Advancement of Science, 1947.

[2] Hirschboeck, J.S.; Lindert, M.C.F.; Chase, J., and Calvy, T.L.: Effects of Urethane in the Treatment of Leukemia and Metostatic Malignant Tumors, J.A.M.A. 136:90 (Jan. 10) 1948. Berman, L., and Axelrod, A.R.: Effect of Urethane in Malignant Diseases, Am. J. Clin. Path. 18:104, (Feb.) 1948. Webster, J.J.: Urethane in Leukemia, J.A.M.A. 135:901 (Dec. 6) 1947.

[3] Haddow, A., and Paterson, E.: Urethane in Leukemia, Correspondence, J.A.M.A. 136:643 (Feb. 28) 1948.

[4] Alpert, L.K., and Peterson, S.S.: The Use of Nitrogen Mustard in the Treatment of Lymphomata, Bull. U.S. Army M. Dept. 7:187 (Feb.) 1947.

[5] Rhoads, C.P.: The Sword and the Ploughshare, J. Mt. Sinai Hosp. 13:299, 1946; Nitrogen Mustards in the Treatment of Neoplastic Disease: Official Statement, J.A.M.A. 131:656 (June 22) 1946.

ORGANIZATION SECTION

NATIONAL CONFERENCE ON RURAL HEALTH

Third Annual Meeting, Palmer House
Feb. 6 and 7, 1948

(Continued from page 473,
THE JOURNAL, MAY 29, 1948)

Saturday Morning, February 7

RURAL SCHOOL HEALTH PROGRAM

DR. G. F. MOENCH, Hillsdale, Michigan, Director, Hillsdale County Health Department; *Chairman, National Advisory Committee,* Health and Summer Round-up for Parent-Teachers Association, Presiding.

The School Lunch Program

MRS. J. LANING TAYLOR, Director, Educational Department, the National Cooperative Milk Producers Federation, Washington, D.C.: Every nutritional survey in the past decade has shown that many school children are victims of malnutrition. Federal aid for school lunches was first made available not as a nutritional program but as part of a program to expand markets for farm products. Funds were appropriated only to pay for labor for preparing and serving the lunches; the government donated the food supplies. This program originated in 1933 when we were in the midst of vast unemployment The problem was to utilize food surpluses and to get the food to the persons who needed it. This was done through governmental purchase and distribution. In 1940 a school milk program made milk available in many schools; in 1943 the nutritional factor became a requisite for local school lunch sponsors in securing federal funds. The federal program then became a cash indemnity system with the government authorized to reimburse the states for part of the expense of serving a nutritionally adequate lunch. It was in this form that the National School Lunch Act of 1946 made the program permanent. In addition, direct distribution of food to schools has been continued by the U. S. Department of Agriculture.

During 1936-1937 the U.S. Department of Agriculture conducted investigations in sixty-six counties in five broad geographic regions. The results indicated that with respect to seven nutrients--protein, calcium, phosphorus, iron, vitamin A, thiamine and ascorbic acid--fewer than one fifth of the families of this country had food supplies in 1936 that met the recommendations in an optimum diet of the Food and Nutrition Committee of the National Research Council. About one fourth of the rural families were in this category and one fourth of them also fell short of the recommended dietary goals in calcium and/or vitamin A, one half or more with respect to thiamine, riboflavin and/or ascorbic acid.

In Boone County, Indiana, which is above average economically and where farmers raise most of the food they need, a survey made in 1946 of 3,000 pupils from first grade through high school showed that (1) 20 per cent of the children ate no breakfast; (2) a majority of the children ate packed lunches which were usually nutritionally inadequate, and (3) about 15 per cent of the children had the same food at the evening meal as had been served at the noon meal. They had too little fruit, and the meals were not balanced. Food was eaten frequently between meals. In general, consumption of milk was low. The best average in the county by schools was two and one-half cups (a little over 1 pint, 473 cc.) a day to a low of four cups (1 quart, 946 cc.) per week in any form. There was ample food, but not the right kind. A twelve year continous study of 10,000 Pennsylvania school children showed that " 85 per cent failed to exhibit reasonably good nutrition in one or more respects." In Minnesota a seven day dietary survey of 1,080 pupils in rural, town, suburban and city schools showed that 40.2 per cent had poor diets, 32.2 per cent fair diets and only 27.6 per cent good diets. In Georgia, Maryland and Michigan the data were similar.

Dr. W. H. Sebrell, of the U.S. Public Health Service, and chief, Division of Physiology, National Institute of Health, cited to the House Committee on Agriculture many recent studies made throughout the country which revealed that school children were suffering from inadequate diets. Among these were the following:

1. In a study of Texas school children, about 20 per cent of those examined were anemic enough to need medical treatment. This type of anemia was due to insufficient iron.
2. A survey of 200 children in West Virginia showed that 54 per cent were getting poor or bad diets.
3. In an area in Vermont the children's teeth were outstandingly poor; 1 in 4 had spongy gums, probably due to deficiency in ascorbic acid.
4. A dietary survey of more than 1,100 Maryland school children revealed that only 8 per cent had an adequate diet.

A study conducted by the Department of Home Economics of the Florida Agricultural Experiment Station covering the period 1940-1945 started with 186 children from a strictly rural community. Ninety-four of the children ate regularly in the lunch room for four years, and 82 were present for the entire period of five years. The school lunch was prepared under the direction of a dietitian and met optimal standards. The principal result was the shift from a pronounced clinical deficiency to a condition of near sufficiency. Also, the hemoglobin values of both sexes and all ages increased during the school year and decreased during vacation.

So in 1946 when there were no agricultural surpluses and employment was at an all time high the Congress passed the National School Lunch Act. Although partly financed by federal funds, the school lunches are still a community affair. Any group that is interested can cooperate with school officials in initiating and carrying out the program. The sponsor, however, must be a school official and the school must be a public or nonprofit private school of the high school level or under. The following limiting requirements must be met: (1) the program must be operated on a nonprofit basis; (2) lunches must meet the nutritional requirements set up under the act by the Department of Agriculture, and (3) the lunch must be available to all children, regardless of their ability to pay and without discrimination.

The diet pattern for three types of lunches has been set up with the rates of reimbursement dependent on the type of lunch served. The type A, or complete lunch, receives the highest rate of reimbursement at a maximum of 9 cents per lunch. The requirements for this lunch are ½ pint(237cc.) of whole milk as a beverage and the following or their equivalent: (1) 2 ounces (54.7 Gm.) of lean meat, poultry, fish or cheese; (2) three-fourths cup of vegetables or fruit; (3) one or more portions of bread and (4) 2 teaspoons (7.76 Gm.) of butter. The type B lunch, which brings a federal reimbursement of 6 cents per lunch, provides about two thirds as much food as the type A lunch. It may be served if a school has limited lunch room facilities but should be supplemented by food brought from home. The type C lunch, which consists of ½ pint (237 cc.) of whole milk as a beverage rates a reimbursement of 2 cents. The department of Agriculture donates some foods, such as dry milk. Schools participating in the reimbursement program are eligible to receive these foods.

The most controversial part of the National School Lunch Act is the section relating to federal payments to states. These federal funds are apportioned among the states by a formula which takes into consideration the number of schoolage children in a state and the per capita income of the state. The law requires that until 1951 federal funds accepted be matched dollar for dollar from sources within the state. From 1951 to 1955 inclusive the states shall receive funds on the condition that each dollar will be matched by one and one-half dollars. After 1955 payments shall be made on condition that each dollar will be matched by three dollars.

We cannot discontinue federal programs and federal aid in one fell swoop without causing hardships and loss of funds already invested. We must move gradually to take the federal government out of these projects. This law is written so that it will be to the advantage of even the poorest states to have the program wholly supported by the state within the next ten years.

The Act of 1946 has one grave defect: the amount to be spent on the program is left to the discretion of Congress each year through appropriations to the Department of Agriculture. The trouble now is that Congress is not willing to appropriate the funds considered necessary to expand the program. Prior to enactment of the National School Lunch Act of 1946 the greatest number of children participating in the program at any one time was 6,655,458 in the year 1945. For the fiscal year 1946-1947 Congress appropriated $75,000,000. Of this amount, $10,000,000 was earmarked for equipment. During the year the program expanded to a point where additional funds were needed and Congress appropriated an additional $6,000,000, making a total of $81,000,000. The number of children participating at the peak of that year was 7,133,927.

For the fiscal year 1947-1948 Congress appropriated only $65,000,000. The decreased appropriation and increased cost of food has handicapped operation of the program. In 1943, when the federal reimbursement for a type A lunch was set at a maximum of 9 cents, the cost of preparing the meal was 17 cents. In 1946-1947 the average cost was 22.9 cents. Increased costs and decreased appropriations have placed the states' agencies in the position of having to decide whether to reduce the number of children being assisted or to cut further the already low rate of assistance per child.

A rise in price to the paying children is accompanied by a decrease in the number of children participating. In Chicago at the beginning of the 1947 school year it was necessary to raise the price of the type B lunch from 8 to 20 cents; participation dropped from 30,000 children daily to 10,000. The authorities immediately tried to reduce the cost per child and did get it down to 15 cents; the participation then went up to 20,000 daily. They later increased the cost to 18 cents, and the number of children being fed dropped to 18,000.

The President's budget request for the fiscal year of 1948-1949 is for only $65,000,000, which is the same amount as was appropriated for the current fiscal year. Last year the National Cooperative Milk Producers Federation was convinced that $100,000,000 was needed to expand the program and so testified before the Appropriations Committees of Congress. The federation intends to request that amount for the school lunch program for the coming year. Those who believe that this is a worth while program should write to their Congressmen and express the need for more federal funds.

Health Education

JOSEPH W. FICHTER, Master, Ohio State Grange, Columbus: The schools recognized the importance of health education many years ago by including physiology in the course of study. This was at least a beginning in health education. By 1915, many schools had introduced courses in hygiene and sanitation, and home economics classes were receiving suggestions about balanced meals. In 1918 a committee of the National Education Association named health as the first of the seven cardinal objectives of education. Much remains to be done. Cancer is a commoner disease of childhood than it is usually supposed to be. A five year study in Michigan revealed that more persons under 20 years of age died from cancer than from diphtheria, syphilis, measles, poliomyelitis, scarlet fever, typhoid, whooping cough or acute rheumatic fever. Only tuberculosis outranked cancer as a cause of death among the diseases studied. A study conducted in Denver estimated that 15 to 40 school children per thousand reveal definite signs of rheumatic heart disease.

Comparatively few schools have an effective health program. The situation is worse in the rural schools than in the city schools, as a result of lack of funds and in many cases lack of interest. The first step in providing health education for every child consists of efforts by the medical profession, schools, farm organizations and other groups to arouse interest in the possibilities of maintaining good health through eating habits, good sanitary conditions, recreation, play and other means. Second, we should work for the enactment of legislation which will provide local public health units equipped to serve every family. Also, we should urge appropriations for state departments of health and for the U.S. Public Health Service adequate to assure sufficient high type professional personnel needed in an expanding health education program. A basic part of health education is preparation of prospective teachers in teacher-training institutions and inservice training for teachers. A state supervisor of health should be a part of each state department of education. In each school there should be a teacher in charge of health, except in the smaller schools which might be served by a circuit teacher. Each child should receive a complete physical examination before entering school, and at least every two years thereafter. These examinations should be followed promptly by corrective and protective measures. There should be more emphasis on play and recreational activities which reach all pupils and less emphasis on highly competitive interschool athletic contests. Especial attention should be given to mental health.

Community Cooperation

Dr. DEAN F. SMILEY, Bureau of Health Education, American Medical Association, Chicago: We need a cooperative system of health appraisal. This is a job for physicians, parents, teachers, nurses and the entire community. Parents should give a health review to a child before he goes to school in the morning. A child who looks as if he is going to be ill should not be sent to school. Teachers have a continuing service, a screening test. They are expected to carry on the weighing, measuring, vision and hearing tests. The work of the physician in health appraisal varies in different parts of the country. In New York state medical examinations are in the hands of the education department and required every year. In Wisconsin they have a scheme for examinations every three years. In Illinois examinations are given every four years. The American Medical Association's bulletin on periodical health examinations recommends examinations of school children at three year intervals; if reasons for additional examinations develop between examinations, they will be had.

Who should do the examining? In California the members of the medical profession prefer to do the examining and it is done in the schools. The family physicians cooperate with the school physicians in giving the examinations. Another scheme is to set up a school physician and to give him such assistance as he needs with part time physicians hired, if necessary. One variation is to bring in and establish examining teams of physicians and to let each practice his specialty and get the examinations done at one time in the autumn.

There is considerable variation in the scope of the examination. Many health examinations in the schools have been hurried inspections. A child goes by so fast that the physician does not see the boy back of the throat at all. We can go to the other extreme and insist on a pediatric examination lasting forty-five minutes to one hour. We can hardly justify that in our schools at this time.

The joint committee on health problems is recommending a health examination about fifteen to twenty minutes in length. Before the test is given the mother fills out a history chart and the teacher does certain routine screening tests; the mother is present at the examination to give assistance and information. With that sort of scheme about fifteen minutes would be adequate.

How can defects be corrected? In many cases it is a matter of convincing the parents. Topeka, Kan., has a scheme under the prepaid insurance plan. The medical society guarantees through the insurance program, a nonprofit program, that there will be complete medical care to welfare families, and the prepaid insurance program is paid $4 per month per family The procedure simply is automatic and authorities are not particular about applying a means test where the scheme is in operation That plan would have the advantage of a wide cooperative scheme of health appraisal, and the follow-up would give a program of health service that would be quite effective

DISCUSSION

DR. MOENCH, Hillsdale, Mich.:It has been my experience that there could never be a school health program until the teachers and the parents and the health advisory agencies in the communities sit down and discuss problems.

MRS. ASHER YAGUDA, public relations chairman, Women's Auxiliary, Newark, N.J.:Last June we gave a program on health education. We impressed our director of health education so much that he asked us to help in implementing the program of health education in the schools in New Jersey. The program we were asked to implement has four points: 1. Examination. We interpret this to mean we must drop routine examinations, which must be completed in the first three months of the year, but must have individualized examinations with the parent present at the examination. 2. Examinations on admission (preschool), fourth, eighth and twelfth grades, as a minimum. 3. Each county superintendent of schools must have facilities of a psychiatrist at his command. A psychiatrist for which this plan calls will act as consultant. 4. All school teachers and personnel to be arranged for every two years. It became increasingly apparent to us that we had to do a good job on the county level at first. We organized health councils. We consider the county councils as a group which will endure as steering councils of the communities. To carry out the plan perfectly, we must set up within them the type of councils that Dr. Smiley has told about. We have been working some four months on the implementation of these councils, which have been organized in eleven of our twenty-one counties to carry through this four point program.

DR. CHARLES H. LERRIGO, Topeka, Kan.:I have been connected with the tuberculosis associations for some forty years. I want to remind you of the way to get help. To Mr. Fichter I say turn to Dr. Robert Peterson of Columbus, Ohio, and tell him that the rural schools of Ohio do not have proper health education largely because of lack of textbooks and proper teaching. I venture to say that every county in Ohio which is represented here today has a good active tuberculosis health association that will gladly finance the matter of production of authoritative books. To Mrs. Taylor I say that every tuberculosis association she can contact (there is one in every county) is interested in nutrition. They are interested to the extent of supplying professional nutritionists. State boards of health also have nutritionists.

DR. FOUTS, Omaha: I want to ask a question Mrs. Taylor mentioned the funds for school lunches. Those who could not pay were being supplied with lunches without cost. What type of means test is given to decide who can receive lunch without money?

MRS. TAYLOR, Washington, D.C.:I understand it is taken care of by the local authorities. They know the children who are not able to pay their share. It is done quietly so that the children themselves do not know who contribute. There is nothing written into the law. There is no discrimination. The lunch must be available to all children where lunches are served.

MISS MABEL RUGEN, Ann Arbor, Mich.:In Chicago they adjust the lunch to the individual students. The program is carried on at the local level. Where there is a problem of a child being able to pay, the financial assistance comes from various sources and is handled, I believe, largely through the school superintendent's office.

DR. R.W. FOUTS, Omaha:Is there any provision for part pay?

MISS MABEL RUGEN, Ann Arbor, Mich.:I think so. The individual child pays what he is able to pay. One way to put into effect some of the suggestions made here would be to needle the school administrators when you go back home. I believe that a cooperative plan that can be carried on through the local health department, representatives of medical and dental societies, farm organizations and other civic organizations can be one of the greatest influences in getting changes in the schools.

DR. MOENCH, Hillsdale, Mich.:The teachers and superintendent and nurses working with these children know whether they can afford to pay or not. Every effort is made to prevent embarrassment to the parents or the children. Many technics can be worked out so that the children can do a little work around the school. They help to administer the free lunches to the children. We have a responsibility to have persons keep their self respect as far as receiving charity is concerned.

MRS. MARGARET DREISBACH, Washington, D.C.: Federal funds are apportioned to states. The program in the states is administered by state personnel in the department of education. The only restriction or specification that is set up by the federal government in the administration of the program is that the nutritional standard be followed for the lunches.

MR. FRANK PECK, Managing Director, the Farm Foundation, Chicago: I would like to pay my respects to the American Medical Association for its efforts to bring the rural picture before its staff and the general public. We have had plenty of statistics and talk. Now we should decide who does what and when and get action into these programs

The Rural Health Program

DR. JAMES R. MCVAY, Chairman, Council on Medical Service in Rural Areas, American Medical Association, Kansas City, Mo, Presiding: Last year I talked before this group about some of the problems of voluntary prepayment medical plans. I believe that it is by meetings such as these that we will be able to develop a solution to the problems of rural medical help. The Council on Medical Service has been particularly interested in voluntary prepayment medical care plans in their distribution to the rural population. The Council on Medical Service is most happy to coordinate its activities with the activities of this group.

Women's Auxiliary

MRS. GRACE HUTCHISON, Woman's Auxiliary, The National Grange, Xenia, Ohio: In our county each Grange has a home economics committee. We stress nutrition and sponsor nutrition contests each year. We are going to try to have our granges devote programs to health. Many who do not practice health rules are unaware of their existence. To the American Medical Association and the farm groups, we pledge our firm support.

MRS. EUSTACE A. ALLEN, *Woman's Auxiliary, American Medical Association*, Atlanta, Ga.: I represent the Woman's Auxiliary to the American Medical Association We are intensely interested in the health of this nation. One of the major problems of the auxiliary is health. We have contacts with civic groups, schools and other lay groups. They can present talks, motion pictures and debates on health. These are not altogether medical problems, but problems of good housing, sanitation, proper diet, clothing and health education, which must begin in the home. What can be done to help educate the family? Some of the projects that the auxiliary is sponsoring maintain loan funds for medical students. the stipulation being that the recipient on graduation must return to his native state and practice in a rural area for two years. Many states have this project. The membership of the Woman's Auxiliary is over 36,000 and represents seven hundred and twenty-five counties in forty-five states. Members are in an excellent position to take part in any health program inspired by these rural health conferences and to help in any way. As another project we work up public relations programs. There are a great many wives of physicians in rural areas. and they are members of all your groups. Ask them to help you promote a health program. Our facilities are at your disposal.

DR. MCVAY, Kansas City, Mo.: The American Medical Association is proud of its Woman's Auxiliary and the work it is doing. It is an important part of the work of the medical profession.

Hill-Burton Program

DR. VANE M. HOGE, Medical Director, U.S. Public Health Service, Washington, D.C.: The hospital survey and construction act gives special privilege and consideration to rural areas. The problems discussed here are national. One recent development in the administration of the hospital program regards decentralization. This is primarily a local and state program and not a federal program. For that reason the division of hospital facilities has recently decentralized its activities to eight district offices. This will make it easier to obtain information. The district directors are now authorized to answer your questions.

The program has been under way some eighteen months Today we have approved thirty-three state hospital construction plans. A great many more are practically complete, and before the end of this fiscal year we expect to have all the states of the nation included in the program. We had as of yesterday approved one hundred and twenty-four hospital projects. Thirty-three state plans which we have approved entail an annual allotment of over $62,000,000. The total for each year is $75,000,000. Most of the states are now in sight of the operation of the program. The approved projects total somewhat over $13,000,000 in federal funds which, of course, constitute one third of the total. Of immediate interest to this audience is the construction phase of this program.

Our reports, compiled weekly, reveal that a great majority of the hospital projects are in communities of less than 5,000 population in hospital service areas in which there are now no existing acceptable hospital beds. Included in the one hundred and twenty-four projects are health centers, nurses' homes and tuberculosis and mental hospitals. Seventy of the one hundred and twenty - four are general hospitals. Forty-five have somewhat under fifty beds; eighteen have from fifty to seventy-five beds; three have from seventy-five tc one hundred; seven have over one hundred. The average is about fifty beds. From these figures it would appear that the rural areas are receiving a high priority, which Congress intended them to receive

The cost of the hospitals is a subject of much concern. A great many factors enter into the discussion of bed costs. There are variables. From the estimates coming in most costs are ranging between $7,000 and $13,000 per bed. The higher figures usually include extra facilities. Construction costs since 1939 have gone up from 90 to 100 per cent. The law authorized $3,000,000 for survey purposes. That money goes to state agencies and not to individual communities. We have paid out to the states about $800,000 so far. The survey does not end when the state plan is complete. It will be necessary to make modifications and amendments, and surveys are needed for individual community projects. With three exceptions all the states and territories have qualified themselves for monies. A few more have not asked for any funds because they have enough of their own. Another activity to which we have given time has been the training of state personnel.

One worry in the beginning was that this program would be new to the state health department. Our fears have been unfounded. A good type of technical personnel has been attained, and they are going through very well with their work. We have held three orientation or training classes in Washington, D. C., for personnel from the state department of health. Each course runs four months.

The act provides no funds for maintenance and operation of hospitals. It will be difficult for some areas to have an assurance of operating the hospital after it is constructed. In many states this matter has been alleviated somewhat by state appropriations. In eight states appropriations have been authorized for assistance in construction. Each will provide one third of the cost. It has been apparent from the beginning that this present five year program would not go far along the road to meet all the needs. It is clear that the present program in its entirety will fill only 13 per cent of the entire need. Many communities are going to be disappointed. The trends that I have mentioned indicate the necessity for states to get out and raise money to build hospitals.

Pediatric Service

DR. RALPH V. PLATOU, Head, Department of Pediatrics, Tulane University School of Medicine, New Orleans: The equalization of pediatric services among children in rural and urban populations will be difficult but not impossible to attain. A successful approach must have the cooperation of all agencies interested in the welfare of children. The overlapping interests of our educational systems, health departments, social agencies and organized medical groups can at times be so complex as to make long-term planning difficult. A sound program by which the child specialist can function directly in the interests of the rural child must use all facilities possessed by all these groups, must minimize existing frictions and reduplications of effort, must be simple and forceful enough to gain everyone's active interest and must be so effective that it will attract an increasing number of young physicians to participate in the movement. Success will depend almost entirely on the amount of enthusiasm and support generated in each local community.

A small proportion of the total medical care extended to the children of our nation is furnished by child specialists. More than a fourth of our total population is made up of children, more than a third of whom live in isolated semirural and rural counties Of three thousand and five hundred pediatricians in the United States, only four are located in these areas and about three hundred in semirural counties. The most important factors determining distribution of physicians are economic considerations, hospital facilities and educational or cultural advantages for their families. There are not now, and probably never will be, enough child specialists to " go around." Even conscientious relocation would not help much at present. The ratio of child specialists to children, state for state, would obviously still remain the same; in Louisiana, for example, there would still be only one child specialist for every 14,000 children. The major burden of medical care for all segments of the population will continue to fall on the willing shoulders of general practitioners. Less than 5 per cent of all our physicians are to be found in isolated rural counties! Something drastic must be done to attract more physicians to the country: better hospitals, better schools, better highways, better subsidies and better planning for continuing programs of postgraduate medical education. The formation of Rural Health Councils can do much to coordinate the activities of all professional and lay organizations working for the betterment of rural health. Such a program of coordination can work only if current plans for adequate hospital training of prospective general practitioners are expedited and rural practice itself is made more attractive. We should require that at least a part of each young physician's training and experience be gained in rural hospitals.

What can be done now? The most sensible immediate solution to the problem is this: a well qualified child specialist will come from the medical schools directly to rural areas to act as coordinator of all available facilities for improving child health, as a consultant for practicing physicians, health officers and educators, and to interest younger physicians in problems of rural children. Such a consultant will cover a large territory and cannot often be concerned with the problems of individual children; for the most part he will teach, conduct demonstrations and establish policies. In some areas he will have to " start from scratch " to build an effective program. His main concern will be to reduce the well meant but often unnecessary duplications of effort brought about by overlapping interests of many existing agencies. This work should be implemented almost entirely by the medical schools, realizing that success will depend on the cooperation of all existing health agencies. Such a consultant ought to be able to work effectively with the physicians in each community. Through the medium of county medical societies and regional hospital staff meetings he can bring valuable practical interpretations of recent advances; he can improve the quality of some meetings by arranging programs suited to particular regional needs and by employing other authoritative speakers directly from the medical schools in those areas he is serving. He can organize in the medical schools short graduate courses specifically designed to fill the needs of physicians in rural practice. Working with local school authorities, practicing physicians and health officers, he can organize effective courses in all aspects of health education; through these same agencies he can implement better systems for periodic health examinations and routine immunization procedures. Such consultants are already working out into the rural areas of Louisiana and Southern Mississippi from our two medical schools in New Orleans. Eight other medical schools have the same plans. Similar arrangements have been made in obstetrics; closer integration of efforts in these two fields will naturally improve practices in maternal and child health in all areas.

Health Councils

DR. H. B. MULHOLLAND, Member, Committee on Rural Medical Service, American Medical Association, Charlottesville, Va.: Health Councils had their origin from a desire to coordinate the activities of widely divergent groups with one primary object, the betterment of health in this country. Health Councils are apparently active in Alabama, North Carolina, West Virginia, Vermont and Virginia. Plans are well under way for the development of health councils in the country as a whole. I have been associated with the Virginia Council on Health and Medical Care since its beginning in 1945. This Health Council consists of forty or more organizations: farm groups; home economics groups; medical groups, including the Medical Society of Virginia, whose president is automatically a member of the Executive Committee, the Negro Medical Society, Graduate Nurses Association, the two state medical colleges, the Mental Hygiene Society and the state dental society; the Conference of Social Workers, Association of County Government Officials, League of Women Voters, National Foundation for Infantile Paralysis, American National Red Cross, Cancer, Tuberculosis and Society for Crippled Children, State Chamber of Commerce, Ruritan and Rotary Clubs also have memberships. This does not include all the member organizations. In addition, individuals may also have membership.

Its objectives are to strengthen through a united effort a full health program for the state, to serve as a clearing house on health and medical care problems and programs, and to help eliminate overlapping of effort. We have been careful not to interfere with any individual program of the member organizations. The primary purpose of the council is to serve as a forum for discussion of problems of health and medical care. The support for this council comes from voluntary contributions from member organizations and from individual members. We have an executive director. Certain programs have been supported: expansion of local health departments, so that every county might be covered by a department; augmentation of the salaries of persons working in health departments; establishment of a Bureau of Cancer Control in the state department of health; initiation of a program to care for the indigent; expansion of the tuberculosis program, and an increase in the number of rural scholarships for students who are studying medicine. All these are accomplished facts. Now that the Hill-Burton program is in full swing, the council is supporting a bill to ask the legislature for money to construct facilities where they are most needed.

The present program of the Council includes expansion of our services for treating the mentally ill, increased appropriations for cancer control and care of the indigent, establishment of scholarships for those who wish to enter hospitals for nursing training and initiation of an experimental project to explore the field of over-all prepayment insurance. The council realizes that health education is an extremely important subject, and it is supporting all the efforts in this direction. It recently had a program which had been broadcast daily throughout the state. A number of local health councils are being started throughout the state, and they will be affiliated with the statewide health council. We believe that the leadership for the initiation of these local units should come from the county medical society, but that the group within such an organization should include everyone concerned with health in its broadest aspects One cannot overemphasize the importance of local cooperative effort in the study and support of the problems of medical care. I urge that all of you go home with the idea of cooperating in the development of local health councils.

DISCUSSION

MR. LLOYD HALVORSON, National Grange, Washington, D. C.: Group practice is one way to get the specialists into rural areas. I don't want to minimize the importance of the general practitioner. Possibly he, too, should be part of a group practice team. I want to call attention to legislation in Wisconsin last year. Cooperative groups worked with the members of the medical profession to get legislation satisfactory to both, enabling consumers to organize their own health plans. I hope that physicians in all states will follow that policy, working with rural groups and establishing broad legislation which will permit consumers to form their own health policy.

MR. JERRY VOORHIS, Secretary, Cooperative Health Federation of America, Chicago: The Cooperative Health Federation of America exists to promote voluntary prepayment health plans. We believe that only as groups voluntarily come together to share on a prepayment basis the need and risks of medical care can it be made possible for rural areas to have the facilities and professional personnel they require. Our organization would be opposed to the interference of laymen with medical procedure. Our organization is dedicated to the proposition that voluntary prepayment plans will over all time be the best answer to these problems. They make certain that persons have a choice. What has happened in Wisconsin is a course of action that could be well copied elsewhere. It is the best single type of legislation that has been passed.

Outline of the Iowa Plan.—Health education forums are being carried on by the interprofessional association and the department of health. The state medical society, dental society, nurses association, pharmaceutic and veterinary medicine groups are cooperating with the state department of health and holding forums. We submit a list of fifty topics. The group of a community organization selects six to be discussed, three in the afternoon and three in the evening forum. We find that with the interprofessional groups getting out into the communities a greater interest in health councils is developing. That is the specific technic being used in Iowa.

DR. R. W. FOUTS, Omaha: In Nebraska we are soon meeting to divide the funds for hospitals. I would like to ask Dr. Hoge whether, in the event that a state is not able to utilize all the funds allocated by the federal government, the unused portion will carry over to the next year or will go back into the general fund.

DR. V. M. HOGE, Washington, D. C.: The allotment is made for a year to a state with an approved plan. You will have an allotment for this fiscal year and it will be good through the following fiscal year. There are two years in which to allocate one year's allotment.

DR. R. W. FOUTS, Omaha: If by the first of June we have not been able to allot the full amount extended to Nebraska for this year, we can go into next year and we would still have the same amount for this year as for next year ?

DR. V. M. HOGE, Washington, D. C.: Your plan was approved and allocated this year. If no grants were made this year, next year you would have double the amount.

DR. ROBERT L. MACCORNACK, Whitehall, Wis.: I have charge of a small hospital in a rural group. About two years ago I made a survey of accidents in our community and found we had three hundred and thirty-three accidents in our small town. Five were fatal. In this group of accidents we were surprised to find that a great percentage occurred in children. When we consider rural health we should give thought to the accident prevention campaign.

DR. A. W. BROWNING, Elloree, S. C.: The good roads and automobiles create a tendency for persons to go to cities to see physicians and use the local physicians for night calls only. We must impress on the young men that if they will go to rural sections they will find that they can lead good, abundant lives.

SUMMARY

RANSOM E. ALDRICH, Chairman, Medical Care Committee, American Farm Bureau Federation, Jackson, Miss.: I want to say to the lady from the Woman's Auxiliary that there are a million farm women in farm women's organizations. There is an opportunity to expand your services. We will be happy to cooperate.

I would like to see the budgets raised for maintenance. If we want hospitals, we can provide maintenance without federal aid. I come from a county that has an assessment of less than $3,000,000. We floated a bond issue and sold bonds at a premium. We provide a clinic and cooperative agreement with the area hospital and maintenance funds at the same time. I want to say to Dr. Mulholland that I am heartily in accord with his idea of a council. I hope that we can keep it as a forum, to promote an active program in areas where we can reach an agreement.

DR. CLIFFORD G. GRULEE, Secretary, American Academy of Pediatrics, Evanston, Ill.: Why are we saying so much about poor rural health? We have suddenly been startled by the fact that it is healthier to live in a city than in the country. That is contrary to all established ideas. The city doesn't deserve any credit. When things get so bad they can't get worse, we do something about it. If the people in the country are not aroused to the needs of the children in that community, we won't get very far. All rural health has not been so bad. Oregon is a rural state, but until the past few years it had the lowest infant death rates in the country. This rural health problem is a local problem. It is one the local community will have to solve. What about the Mexicans? There are much higher death rates in states where the Mexicans live than in any other states in the union. We must have funds from a central group to take care of them.

LUNCHEON MEETING

DR. F. S. CROCKETT, Lafayette, Ind., Presiding

DR. A. C. SUDAN, Denver: I don't have to tell you how deeply I am honored by the American Medical Association's first annual award to a general practitioner. This award is actually a recognition of the splendid efforts of all general practitioners. It reminds people that life in the best nation of the world gets the best medical care from a family physician and not from socialized medicine. Problems of rural health have occupied almost all of my professional life. We know that the health of America can be improved, but the only proper approach to the problems of rural health is by free people working together in a community spirit without any compulsion from the government. In the Rocky Mountain region community interest in better rural health is increasing. Many small towns are going ahead with new hospitals in spite of scarcity of building materials, building them as community projects instead of waiting for a handout from Uncle Sam. We know that whoever pays the fiddler has the right to call the tune. If a dollar is sent first into Washington it is trimmed and trimmed and comes back to the community as a smaller piece of change. We must work more closely with the school boards, the teachers, the parent-teachers organizations, and the health councils to bring about the day when every school child will receive sound basic training in personal and health happiness.

DR. EDWARD L. BORTZ, President, American Medical Association, Philadelphia: This conference is significant because of the fact that so many farm organizations represented here are participating with the American Academy of Pediatrics and the American Medical Association in an all-out search for methods to improve the health of our citizens who are in charge of the nation's agriculture. One cannot stress too strongly the fact that a healthy citizenry is essential to our country's prosperity and future security. Organized medicine is aware of the importance of child health. One of the major items of its national health program is: "Every child should have proper attention, including scientific nutrition, immunization and other services included in infant welfare." The various councils of the American Medical Association are focusing their activities on numerous aspects of child health and welfare. One of the strongest committees of our Association is that on Rural Medical Service. Data of importance have been collected, and with these facts to guide our Association, plans for improving health in the farm districts are under way. Where the approach from the national level is expedient our Association has gone into action; local problems oft-times can best be worked out at the community level.

The creation of health centers and diagnostic clinics and the improvement of hospital facilities are on the way. Frequent conferences between community health leaders and those who mold public opinion, in association with medical authorities, are being held. Health classes in the schools and the encouragement of health talks on the radio and through other channels of communication represent another activity of the American Medical Association.

A sound health program should begin in childhood and continue throughout the life of all persons. In developing a wholesome program for our citizens of tomorrow the American physician has never been more competent. With his excellent medical education and understanding of health problems he is well equipped to assume leadership. When organizations like those representing our farm groups unite with organized medicine in a unified program for improving the health services of rural districts, there is much hope for a more vigorous nation. Let me assure you that the American Medical Association is working diligently in the interests of a healthier people.

Losers, Finders, Keepers

DR. EDWARD E. ELLIOTT, President Emeritus of Purdue University, Washington, D.C.: Nearly fifty years ago I found myself a starving chemist so I went to teaching. I was superintendent of schools. I know that education, as we understand that term, is fruitless unless we are dealing with healthy human beings. For the past two years I have been studying the profession called pharmacy. I have been studying the character and personalities of the 100,000 legally licensed pharmacists. In 1947 the physicians of this country delivered to these pharmacists 350,000,000 prescriptions. In the official catalogues there are today in excess of 25,000 different forms of medicinal preparations on the market. I have been interested in discovering one significant fact. The annual sale of pill or packaged medicine without prescriptions reaches the tremendous sum of $500,000,000 a year. We call this self medication. We still believe in magic. Physicians come in contact with it every day. A man of misspent life appears before you. He wants a pill that will produce instantaneous recovery. I am reading from a clipping from the American Museum of Natural History. Ten million Americans buy rabbits' feet each year. The human mind does not develop as rapidly as the things it seeks to control. As I look on the medical problem I do not see as clearly as some of you apparently do the distinction between rural medical service and medical service in the city. I agree with George Bernard Shaw who said this is a foolish thing that a sound body is the production of a sound mind. The goal of such crusades as that represented by this conference cannot avoid becoming concentrated on men's minds as a necessary prerequisite for the salvation of their bodies. As I sat through this morning's meeting I kept asking myself, are they reaching a decision that we can afford these things if we will? The question is not one that belongs even under the valiant leadership of the American Medical Association. It belongs to the whole of our leadership to create a sense of individual responsibility, the individual responsibility of the parent for the child, the individual responsibility of a community for its own welfare, and above all the individual responsibility of each person for his own welfare. The great need is not more physicians but fewer patients. The price that we are going to pay is not in terms of skilful medical service altogether, nor is it in terms of money; the price we are going to pay is the effort required to recapture our own sense of self responsibility.

Washington Letter

(From a Special Correspondent)

June 2, 1948.

Membership in World Health Organization Indicated

Legislation authorizing membership of the nation in the World Health Organization was voted 6 to 3 by the House Rules Committee, where it had been held up for eleven months. Indications were that the measure would be given early approval by Congress. The bill was revised to limit to $1,920,000 a year the contribution of the federal government to the world agency. The bill was passed by the Senate almost a year ago and the House Foreign Affairs Committee cleared it through but the Rules Committee tabled it. The new organization meets in Geneva in June, and the State Department advocated passage so that this country can participate. House Speaker Joseph W. Martin Jr. endorsed the bill, along with the House Steering Committee, but delay was encountered again in the Rules Committee which requires a unanimous vote to remove a bill from tabling. Representative Walter H. Judd, Republican of Minnesota, dissolved the impasse by submitting a slightly revised bill. A new provision requires the President to appoint, for Senate confirmation, a practicing physician or surgeon with at least ten years' experience to represent this country on the executive board of the World Health Organization. The bill also states that there must be nothing in the constitution of the world health group which would commit the United States to enact any specific legislation.

Medal of Merit Awarded to Scientists

Defense Secretary Forrestal announced that the Medal of Merit had been awarded to sixty-five scientists and engineers of the wartime Office of Scientific Research and Development. The President's Certificate of Merit was awarded to three hundred and eighty-seven other persons, and the War and Navy Department Certificate of Appreciation to seven hundred and eighty-two others. At a ceremony in the Pentagon Building, Dr. Vannever Bush, director of the office during the war and presently chairman of the Research and Development Board and president of the Carnegie Institution in Washington, presented the Merit Medals to the following: Drs. Leason Heberling Adams, John Swalm Burlew and Richard Brooke Roberts, all of Carnegie Institution; Edward F. Knipling, Bureau of Entomology, Agriculture Department; Roger Sherman Warner Jr. and Carroll Louis Wilson of the United States Atomic Energy Commission and Alan Tower Waterman, Office of Naval Research.

Registry of All Known Cancer Cases

Health officials of the District of Columbia announce that a register will be kept of all known cases of cancer, similar to the record now kept of every known case of tuberculosis. Officials are studying the system of cancer control now in use in Hartford, Conn. Insurance figures reveal an improved general health condition in the national capital.

Plans for Army Hospital at Forest Glen Postponed

Possible unification of hospital facilities of the Army and Navy has resulted in plans being dropped for the proposed thousand bed Army general hospital at Forest Glen, Md., according to Representative Bates, Republican of Massachusetts. Abandonment of the Forest Glen plans was recommended by the Army Surgeon General. The House passed by voice vote a bill totaling $194,631,440 for installations at Army and Air Force posts around the world.

Medical Legislation

STATE LEGISLATION

Mississippi

Bills Enacted.—H.282 was approved April 13, 1948. It authorizes the incorporation of organizations for medical and surgical purposes or for establishing, maintaining and operating clinical, pathologic, medical or surgical research laboratories or the like. Such corporations shall not be required to make publication of their charter, shall issue no shares of stock, shall divide no dividends or profits among their members, shall make expulsion the only remedy for nonpayment of dues, shall vest in each member the right to one vote in the election of all officers, shall make the loss of membership, by death or otherwise, the termination of all interest of such members in the corporate assets, and there shall be no individual liabilities against the members for corporate debts, but the entire corporate property shall be liable for the claims of creditors. H. 290 was approved April 13. It authorizes the establishment of a scholarship program for the advanced study of nursing which consists of forty scholarships of the value of not more than $3,000 each. Students accepting assistance from these scholarships must agree to spend a period of time working as nurses in Mississippi equal to the number of years during which they accepted the benefits of the scholarships. H. 291 was approved April 14. It authorizes the establishment of a school of nursing at the University of Mississippi and inaugurates a scholarship program in connection therewith. H. 310 was approved April 14, 1949. It makes an appropriation of $130,000 for the purpose of defraying the expense of educating and treating children afflicted with cerebral palsy, such sum to be expended under the supervision of the state board of education by the Mississippi crippled children's service. H. 312 was approved April 13. It amends the Mississippi code relating to the regulating of registered nurses by clarifying the powers and duties of the board of nurses' examiners. H. 532 was approved April 13, 1948. It amends the law relating to the Mississippi Commission on Hospital Care by, among other things, authorizing it to lay out a plan for building and equipping schools of nursing to be located in strategic points in the state for the promotion of the advancement of nursing education. H. 533 was approved April 12. It amends the hospital construction act by providing authorization for operating and equipping health centers or health departments in the various municipalities of the state. H. 687 was approved April 13. It enacts a hospital licensing law and, in conjunction therewith, provides for the appointment of an advisory hospital council to consult and advise with the licensing agency and to assist in the development of rules, regulations and standards to be required of hospitals seeking licensure. No such rules, regulations or standards shall be adopted or enforced which would have the effect of denying a license to a hospital or other institution required to be licensed hereunder, solely by reason of the school or system of practice employed or permitted to be employed therein. S. 446 was approved April 13, 1949. It requires all persons licensed to practice pharmacy to renew their licenses annually.

GOVERNMENT SERVICES

NAVY

NEW REGULAR OFFICERS

Lieut. Comdr. William M. Crafft and Lieut. John H. Stover, both of the Naval Reserve, have returned to active duty to accept appointments in the Regular Navy Medical Corps.

The following members of the graduating class of the medical school indicated have accepted appointments as lieutenants (jg) in the Regular Navy Medical Corps: Merrill A. Bender of Ohio (Harvard); John H. Bowen of California (College of Medical Evangelists); Charles R. Campbell of California (Tulane University School of Medicine); Harold J. Crecraft of Pennsylvania (University of Maryland School of Medicine); Joseph H. Early Jr. of Virginia (George Washington University School of Medicine); William T. Gyles of Oklahoma (University of Oklahoma School of Medicine); Jerome L. Heard of Louisiana (Tulane University School of Medicine); John B. Jacob of Oklahoma (University of Oklahoma School of Medicine); Cunningham R. MacCordy of Louisiana (Tulane University School of Medicine); Norman P. Morin of Maine (McGill University School of Medicine), and Forrest W. Olson of South Dakota (University of Oklahoma School of Medicine).

NAVAL CAREER IN RESEARCH

The Bureau of Medicine and Surgery has added the field of research to the list of specialties for which medical officers may qualify and thus be assured of spending a major part of their Naval career in research. While the qualifications required for this specialty are not inflexible, it is desirable to have a Ph.D. degree in a basic science. However, the application of any officer of the Naval Medical Department having an interest in research as a career will be considered, and if such training is indicated he will be started on a tour of duty at one of the Naval Medical Research Institutions, followed later by a short tour of sea duty to provide an over-all picture of the Navy's needs. Training in civilian research laboratories will be offered also. Applications are desired from physicians and other scientists now in the Naval Reserve and also from qualified civilians interested in a career of naval medical research.

VETERANS ADMINISTRATION

VOLUNTARY SERVICE NATIONAL ADVISORY COMMITTEE

Representatives of thirty-five national organizations, comprising the Veterans Administration Voluntary Service National Advisory Committee, met at the central office in Washington, D. C., May 27. Under the voluntary service plan, each organization assists in the program under its own identity and cooperates with other member groups of the local committee in a general program for hospitalized veterans. The program has developed in all veterans' hospitals to the point where a voluntary service committee is coordinating the work of all voluntary groups. The meeting was addressed by Carl R. Gray Jr., Administrator of Veterans Affairs; Dr. Paul B. Magnuson, Chief Medical Director, and Mr. F. R. Kerr, Assistant Administrator for Special Services and chairman of the national committee.

TELETYPE NETWORKS IN VETERANS' HOSPITALS

To speed up service, the Veterans Administration announces that teletype networks permitting almost instantaneous communication between branch offices and hospitals have been installed. A regional office attempting to locate a hospital bed for a veteran requiring immediate hospitalization can teletype simultaneously to all hospitals within the area; thus the veteran can be assigned to the nearest hospital having a vacant bed. The new system using leased teletype lines at flat rental rates replaces commercial telegraph and long distance telephone services whenever possible. The leased line systems result in saving to the government by reducing the number of long distance calls and telegrams. Before this system was installed the average telecommunication cost in branch office 2, encompassing the state of New York, averaged $5,000 a month and now averages $3,000 a month, although the volume of messages has increased from 2,500 to 7,000.

CONFERENCE ON REVISION OF LISTS OF DISEASES

Eugene L. Hamilton, chief, medical statistics division, Office of the Surgeon General, recently returned from Paris, France, where he was a member of the United States Delegation to the Conference for the Sixth Decennial Revision of the International Lists of Diseases and Causes of Death. The conference, which was convoked by the government of France, included representatives from some twenty-eight countries. The United States delegation included Dr. Halbert L. Dunn, of the National Office of Vital Statistics, chairman; Dr. George Baehr, president of the New York Academy of Medicine; Dr. Joseph Berkson, chief statistician, Mayo Clinic; Dr. E. F. Daily, director, division of health services, Children's Bureau; Dr. P. M. Densen, chief, division of medical research statistics, Veterans Administration; Dr. H. F. Dorn, chairman, statistical section, National Cancer Institute; Dr. W. Thurber Fales, director, statistical section, Baltimore City Health Department; Mr. E. L. Hamilton, chief, medical statistics division, Office of the Surgeon General, U. S. Army; Dr. I. M. Moriyama, chief, mortality analysis section, National Office of Vital Statistics; Dr. Edward S. Rogers, dean, School of Public Health, University of California, and Capt. Robert L. Ware, chief, division of medical statistics, Bureau of Medicine and Surgery, U. S. Navy. It is expected that responsibility for the periodic revisions of these international lists will now be assumed by the World Health Organization.

CONTRACTS FOR HOSPITALS

A contract has been awarded for the construction of a two hundred bed Veterans Administration hospital at Saginaw, Mich., costing $4,000,000. Construction is expected to begin within the next thirty days.

RETIRED HOSPITAL MANAGER HONORED

Dr. Hans Hansen was guest of honor at a testimonial dinner at Geneva, N. Y., on the occasion of his retiring from the Veterans Administration after twenty-eight years of service, the last thirteen of which were as manager of the veterans' hospital at Canandaigua. About two hundred and fifty members of the staff and other friends attended. The honored guest was presented with a set of luggage as a token of esteem from his associates. Dr. Hansen is a graduate of Creighton University School of Medicine, Omaha, and is a veteran of World War I. During his period at the hospital the bed capacity has been increased from about 700 to nearly 2,000. Dr. Nils B. Horsloff, who will succeed Dr. Hansen as manager, is a graduate of Columbia University Medical School, New York; interned at St. Elizabeths Hospital, Washington, D. C.; studied at the Wagner Juaregg Clinic in Vienna, Austria; engaged in private practice, was instructor in psychiatry at Columbia, attending psychiatrist at the New York Psychiatric Institute and chief of the psychiatric clinic at Lenox Hill Hospital for several years. During the recent war he served in the medical corps in North Africa, Sicily, Italy and the Persian Gulf commands.

PUBLIC HEALTH SERVICE

DEADLINES FOR APPLICATIONS FOR RESEARCH GRANTS

The National Institute of Health, Bethesda, Md., has set the following deadlines for the receipt of applications for U. S. Public Health Service grants in support of medical research: June 15 for applications to be reviewed at the September meeting of the National Advisory Cancer Council; July 15 for applications to be reviewed at the October meeting of the National Advisory Mental Health Council and August 1 for applications to be reviewed at the October meeting of the National Advisory Health Council.

DR. WISHIK APPOINTED TO CHILDREN'S BUREAU

Dr. Samuel M. Wishik, head of the division of physically handicapped children of the New York City Health Department, has been appointed to the U. S. Children's Bureau to direct the planning work for the program of grants in aid to the states for maternal and child health and for crippled children's services. He will be particularly concerned with developing standards for and improvements in these health services, thus helping the field staff and the state health departments. The Children's Bureau is authorized by the Social Security Act to grant $18,500,000 a year to the states for these programs.

Dr. Wishik was formerly director of the Hawaii Health Department services for maternal and child health, and for crippled children. During the war he was commissioned in the U. S. Public Health Service. He is certified by the American Board of Pediatrics. In his new position Dr. Wishik succeeds Dr. Abram L. Van Horn, who resigned to direct the Kate Macy Ladd Fund in Newark, N. J., which was established to provide medical care for convalescents.

AWARDS AND COMMENDATIONS

Dr. Robert L. Cherry

The United States of America Typhus Commission Medal was recently awarded to Dr. Robert L. Cherry, surgeon (R), U. S. Public Health Service, now deputy administrator of the Red Cross in Alexandria, Va. The citation read as follows: He rendered exceptionally meritorious service in the control of the epidemic of typhus fever at Naples, Italy, during the period Dec. 20, 1943 to Feb. 20, 1944. As chief of a section for case finding and epidemiologic investigation, he carried heavy responsibility. Dr. Cherry's excellent work contributed materially to the successful checking of this epidemic, thus protecting both civilians and American troops. The decoration was awarded in a ceremony last June in Bogota, Colombia, while Dr. Cherry was with the office of the Institute of Inter-American Affairs.

DR. DEARING APPOINTED DEPUTY SURGEON GENERAL

The U.S. Public Health Service has announced the appointment, effective May 17, of Dr. W. Palmer Dearing as Deputy Surgeon General to succeed Dr. James A. Crabtree. Before entering the Public Health Service in 1934 Dr. Dearing taught epidemiology at Harvard University School of Public Health and preventive medicine at Harvard Medical School, where he graduated with honor in 1931. During the recent war he was assistant chief medical officer and later chief medical officer of the Office of Civilian Defense; afterward he did personnel work in the health division of UNRRA, serving in North Africa and Europe. Recently he has been chief of the division of commissioned officers in the public health service. Dr. Crabtree on leaving his previous position will serve on detail as head of the medical unit of the National Security Resources Board, working on mobilization planning in the medical field.

AID CANCER TEACHING PROGRAMS

The U. S. Public Health Service announced the award of grants totaling $435,706 for cancer teaching programs in medical and dental schools as part of a $2,000,000 program to improve the teaching of cancer. These grants bring the total already made to $1,389,573 distributed to sixty medical schools and seventeen dental schools, the individual sums ranging from $5,000 to $25,000.

PERSONALS

Dr. Paul A. Lindquist, senior surgeon (R), has been assigned to the State Department for duty with the American Mission for Aid to Greece. He will conduct special training on trachoma, leprosy and venereal disease control and will serve also as liaison officer with the Greek War Relief and Near East Foundation.

Dr. Leslie W. Knott, surgeon, has been appointed deputy director of the public health division of the mission for aid to Greece, to succeed Vernon G. MacKenzie, who has returned to the United States to take charge of the Stream Pollution Laboratory at Cincinnati.

HOSPITAL NEWS

President Truman and the Federal Board of Hospitalization have approved the acquiring of a 15 acre site in Boston, within a mile and a half of Harvard Medical School, for a thousand bed veterans' hospital. Previous sites authorized for this hospital were abandoned because the Veterans Administration could not obtain title.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

NAME	CITY & STATE
Albee, F.H. Jr	Colonia, N.J.
Alpern, C.	Chicago, Ill.
Armitage, J.E.	Santa Barbara, Calif.
Ashley, G.D.	Winston-Salem, N.C.
Aulie, H.G.	Detroit, Mich.
Ausband, J.R.	Winston-Salem, N.C.
Barton, D.W.	Troy, N.Y.
Beidleman, B.	Hanover, Pa.
Bell, R.P. Jr	Lakewood, Ohio.
Berge, H.L.	Minneapolis, Minn.
Bland, C.L.	Sonora, Ky.
Brown, E.O'D.	Chicago Heights, Ill.
Bruce, C.O. Jr	Eminence, Ky.
Burke, W.H.	New York, N.Y.
Burke, J.W.	Lima, Ohio
Burnett, W.E.	Arlington, Va.
Caldwell, D.M.	East Orange, N.J.
Cannon, J.A.	Glendale, Calif.
Carpenter, G.T.	Goshen, Ind.
Carroll, J.T.	Fulton, N.Y.
Chatham, B.C.	Greenville, Ky.
Cheek, J.H.	Hobbs, N.M.
Chute, W.D.	Omaha, Nebr.
Clear, J.J.	Cincinnati, Ohio
Clements, C.G.	Murrysville, Pa.
Colon-Rivera, W.D.	Santurce, P.R.
Colver, H.D.	Portland, Oreg.
Cotton, W.T.	Omaha, Nebr.
Deems, M.B.	Huntington, Ind.
Degeneres, L.H.	Shreveport, La.
Dixon, R.W.	Mooreland, Okla.
Doolittle, S.B.	Bradford, Pa.
Dorfman, A.	Chicago, Ill.
Dorkin, J.R.	Camden, N.J.
Doss, W.G.	Nashville, Tenn.
Drake, M.E.	Berwyn, Md.
Drewery, R.E.	Kenmore, N.Y.
Drexler, O.	New York, N.Y.
Eastment, W.H.	Philipsburg, Pa.
Eby, L.G.	Sheboygan, Wis.
Eichenlaub, J.E.	Chevy Chase, Md.
Eskind, H.G.	Providence, Ky.
Evert, R.N.	St.Paul, Minn.
Farquhar, J.D.	California, Pa.
Feaster, J.H.Jr	Piedmont, W. Va.
Felder, R.E.	Fulton, Ind.
Felger, H.P.	New York, N.Y.
Fishburn, G.W.	San Diego, Calif.
Florence, T.J.	Douglasville, Ga.
Foster, W.L.	Asheville, N.C.
Friedman, E.W.	New York, N.Y.
Friskel, A.K.	Frontenac, Kansas
Gallagher, P.	El Paso, Texas
Garau, S.	Guayama, P.R.
Garvin, J.P.	Cincinnati, Ohio
Getscher, P.E.	Omaha, Nebr.
Giannotto, A.S.	Newark, N.J.
Gilbert, C.R.A.	Charlottesville, Va.
Giovacchini, J.A.	Sanger, Calif.
Glaser, G.H.	New York, N.Y.
Gleichert, J.E.	Altoona, Pa.
Gomez, H.E.	Rio Piedras, P.R.
Graham, R.A.	McAllen, Tex.
Gremillion, D.F.	Bristol, Conn.
Griffin, W.R. Jr	Asheville, N.C.
Griffiths, S.J.	Muskegon Hts, Mich.
Hall, W.A.	Pittsburgh, Pa.
Halpern, S.L.	Brooklyn, N.Y.
Hamilton, H.N.	Winder, Ga.
Hammel, H.T.	Monon, Ind.
Harris, R.	Albany, N.Y.
Hazelrigg, T.R. Jr	East Cleveland, Ohio
Held, A.T.	Columbus, Ohio
Hieb, W.E.	Marion, S.D.
Hirleman, H.R.	Storm Lake, Iowa
Holt, W.E.	Philadelphia, Pa.
Hoover, G.W.Jr	Washington, D.C.
Houck, C.D.	Lewisburg, W. Va.
Houle, L.B.	Cambridge, Mass.
Hutchinson, J.B.	Denver, Colo.
Jackson, T.W.	Piedmont, W.Va.
Jacobs, M.H.	Bronx, N.Y.
James, B.R.	Fresno, Calif.
James, G.T.	Northport, Ala.
Jankovsky, K.A.	Sedgwick, Colo.
Jenk, L.F.	Fort Dodge, Iowa
Johnson, A.C.	Richmond, Va.
Kahn, R.E.	New York, N.Y.
Kain, P.E.H.	Haddonfield, N.J.
King, B.F.	Aberdeen, S.D.
Kingsbury, K.R.	Marshalltown, Iowa
Kinnaird, R.Jr	Danville, Ky.
Kirby, L.B.	Harrison, Ark.
Kobilak, R.E.	Flushing, N.Y.
Kramish, D.	Denver, Colo.
Krueger, J.E.	Gary, Ind.
Kundert, K.F.	Norwalk, Wis.
Lehmann, W.K.	Dennison, Ohio
Levitt, M.F.	New York, N.Y.
Littleton, L.R.Jr	Arlington, Va.
Lloyd, R.P.	Fort Wayne, Ind.
Lockhard, W.S. Jr	Durham, N.C.
Loftus, T.M.	Hudson, Pa.
Loperfido, F.J.	Bronx, N.Y.
Luger, N.M.	Brooklyn, N.Y.
MacRae, M.M.	Moultrie, Ga.
McHugh, J.J.	Philadelphia, Pa.
McIntyre, C.	Cincinnati, Ohio
Major, W.K.	Kenmore, N.Y.
Maxwell, P.J.Sr	Lincoln, Neb.
Meadows, J.W.	Spokane, Wash.
Merrill, J.P.	Boston, Mass.
Miller, W.C.	Abbeville, La.
Moon, J.W.	Baraboo, Wis.
Moore, J.C.	Philadelphia, Pa.
Murphy, E.G.	Douglaston, L.I., N.Y.
Murphy, W.E.	Lakeview, Oregon
Namey, J.T.	Farrell, Pa.
Nichols, R.K.	York, Ala.
Oler, W.M. 3d	Rye, N.Y.
Orsini, S.A.	New York, N.Y.
Paret, F.L.	North Bergen, N.J.
Parker, E.A. 3d	Upper Darby, Pa.
Parlova, C.C.	Astoria, Oreg.
Parmer, L.G.	New York, N.Y.
Parrish, R.G.	Comanche, Okla.
Parvin, R.W.	Merchantville, N.J.
Perkins, W.H.	New Egypt, N.J.
Peterson, L.F.	Plymouth, Ind.
Petryshyn, W.A.	Brooklyn, N.Y.
Pileggi, J.J.	Ossining, N.Y.
Playfair, J.H.	Irwin, Pa.
Pollingue, O.L. Jr	Port Barre, La.
Pool, C.C.	Charleston, W.Va.
Rall, J.E.	Naperville, Ill.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CONNECTICUT

Stanley Osborn Day.—In recognition of more than twenty-five years of faithful public service, the Connecticut Public Health Association celebrated Stanley H. Osborn Day May 12. The scientific program held at Yale University School of Medicine emphasized trends in public health practices. Panel discussions were held on the health of the school child, infant diarrhea in hospitals and the future of the voluntary nursing agency health councils. In round table discussions the general hospital as a community health agency and chronic diseases were discussed. Speakers at the reception and banquet were: Charles E.A. Winslow, New Haven, Conn., Reginald M. Atwater, New York, Erval R. Coffey, New York, and Stanley H. Osborn, Hartford.

Dr. Osborn, a graduate of Tufts College Medical School, Boston, 1914, became a district health officer in the Massachusetts State Department of Public Health in 1916. He came to Connecticut in 1920 as deputy commissioner of health and has been state commissioner of health since 1922. He has also been a lecturer in public health at Yale since 1924.

FLORIDA

Rabid Foxes.—A fight against rabid foxes has been started by the state board of health, Florida Fresh Water and Fish Commission and the State Livestock Sanitary Board. S.M. Canup of the U.S. Fish and Wildlife Service is in Florida to supervise the work. The situation has become so acute that rabid foxes on several occasions have come into towns and attacked dogs, cattle and in some instances human beings.

ILLINOIS

Terminate Emergency Maternity and Infant Care Program.--Federal funds will not be available for maternity care received after May 31 under the emergency maternity and infant care program for wives and babies of enlisted servicemen, the state department of public health has announced. This is an additional step in the termination of the war emergency program established by Congress to provide maternity and infant care for the wives and babies of enlisted men. The program was placed on a liquidation basis by Congress as of June 30 last year. Since November 1942, when the program started in Illinois, about 62,000 wives have received maternity care. Also, medical and hospital care has been provided for about 13,000 infants. This program has been administered by the division of maternal and child health of the state department of public health.

Chicago

Hospital News.--Mount Sinai Hospital opened its new two story sixty bed addition late in May. Twenty per cent of the beds in the new wing have been allocated for service to patients unable to pay.

Fraternity Lecture.--Dr. R. Scott Stevenson, London, England, will deliver the William W. Root Lecture at the annual dinner of the Alpha Omega Alpha at the Palmer House, Chicago, June 24, on "The Birth of Laryngology."

Alvarez to Give Irish Lecture.—The second annual Henry E. Irish Memorial Lecture was delivered by Dr. Walter C. Alvarez, Rochester, Minn., on June 9 at 1 p.m. in room 221, University of Illinois College of Medicine, on "The Vanishing Art of Diagnosing with One's Eyes and Ears." The lecture is sponsored by Eta Chapter of Alpha Kappa Kappa in honor of the late Dr. Henry E. Irish, a former member of the faculty of the University of Illinois.

Lectures for Prospective Fathers.—Chicago Lying-In Hospital and Dispensary of the University of Chicago is presenting three evening classes, June 1, 8 and 15, for expectant fathers in the Chicago area in the Dora DeLee Hall at the hospital. The first lecture, devoted to psychology of pregnancy and labor, was presented by Dr. William J. Dieckmann, chief of staff. Miss Catherine Sheckler, assistant professor of nursing education, delivered the June 8 dual lecture on family life and the new baby. A pediatrician from the Bobs Roberts Memorial Hospital for Children and Miss Maxine Green, dietitian at Chicago Lying-In Hospital, will conclude the lectures with the topics, Baby's First Year and Making the Formula. Classes are free of charge. Prospective fathers are invited to register by writing the nursing department of Chicago Lying-In Hospital, 5841 Maryland Avenue, Chicago 37.

IOWA

Appointments and Promotions.—Dr. Adolph L. Sahs has been appointed head of the department of neurology at the University of Iowa College of Medicine, Iowa City, where he has been professor and acting head since the retirement of Dr. Clarence Van Epps in 1946. A native Iowan, Dr. Sahs received his M.D. degree at the college of medicine in 1931 and joined the staff of the neurology department in 1933 as an instructor, becoming a full professor of neurology in 1946. He held a Rockefeller Foundation Fellowship in neurology in 1938-1939. Others appointed are: Dr. Frederick H. Hesser, assistant neurologist and instructor in neurology at Duke University School of Medicine, Durham, N.C., as assistant professor of neurology; Dr. Raymond R. Rembolt, Lincoln, Neb., as director of the State Services for Crippled Children and medical director of the School for Severely Handicapped Children; Dr. Wendell P. Stampfli, Denver, as assistant professor of radiology; Dr. Otis S. Lee Jr., research fellow, as assistant professor of ophthalmology. These appointments are effective July 1.

LOUISIANA

Society News.--The newly organized New Orleans Academy of Internal Medicine has elected Dr. Thomas P. Findley Jr. president and Dr. Samuel B. Nadler secretary-treasurer.

Personal.--At a recent meeting of the Louisiana State University Medical Alumni Association in Monroe, Dr. Thomas A. Richardson, Minden, was elected president, and Dr. Donald B. Williams, Lafayette, secretary-treasurer.

MASSACHUSETTS

Personal.—Brig. Gen. James Stevens Simmons, Army, retired, dean of the Harvard School of Public Health, on April 16 was elected president of the Association of Schools of Public Health at the annual meeting of the association held at the Connaught Laboratories, University of Toronto, Canada. On April 19 he delivered the James D. Bruce memorial lecture in preventive medicine at the annual convocation of the American College of Physicians in San Francisco, where he also was awarded the James D. Bruce Memorial Medal for Achievement in Preventive Medicine.

MICHIGAN

Hospital Survey.—The Michigan Office of Hospital Survey and Construction reports that the state plan for hospital facilities was approved by the Michigan Advisory Hospital Council at its April 8 meeting. When approved by the Surgeon General, U.S.Public Health Service, the plan makes Michigan eligible for $2,171,000 a year for five years to assist local communities in developing hospital facilities. Michigan, which now has 14,040 suitable beds in general hospitals, needs 27,776 beds according to U.S.Public Health Service standards.

MINNESOTA

Carman Lecture.—The annual Carman Lecture of the Minnesota Radiological Society was given by Dr. Paul C. Hodges, professor of radiology, University of Chicago School of Medicine, June 7, on "The Role of X-Ray Pelvimetry in Obstetrics." Dr. Hodges also spoke at the society banquet at the Minneapolis Club at 6:30 p.m. on "Notes on Three Current Developments in Diagnostic Radiology."

MISSOURI

State Medical Elections.--At the annual meeting of the Missouri State Medical Association March 14-17, Dr. Robert Mueller, St. Louis, was installed as president and Dr. W. Wallis Smith, Springfield, president-elect. Dr. Perry W. Jennings, Canton, was elected secretary and Dr. William A. Bloom, Fayette, treasurer.

New Preventive Medicine Professor.—Dr. Robert E. Shank, New York, has been appointed professor of preventive medicine and head of the department of *preventive medicine and public health at the Washington* University School of Medicine, St. Louis, effective July 1. Dr. Shank is a graduate of the school of medicine, 1939, and is at present with the William H. Park Laboratories in New York.

MONTANA

Annual State Medical Meeting.—The Montana State Medical Association will hold its annual session at the Northern Hotel, Billings, June 16-19, under the presidency of Dr. Louis W. Allard. Out of state speakers, all from Denver, will be: Bernard B. Longwell, Ph.D., endocrine interrelationships, and Drs. E. Stewart Taylor, treatment of gynecologic cancer; Clarke H. Barnacle, psychiatric implications of the climacteric and senescence; Henry Swan, age of choice for surgery in children, and Robert W. Gordon, treatment of nephritis, Two panel luncheons have been arranged for Thursday, one on Developments in Thoracic Surgery and one on Advances in Endocrinology. Friday's panel discussions at luncheon will take up Advances in Psychiatry and Obstetric Anesthesia. A buffet supper and dancing will be held Thursday. At the banquet Friday, eighteen physicians who have been practicing fifty years or more will be honored as charter members of Montana's Fifty Year Club. The Woman's Auxiliary will meet in conjunction with the state meeting.

NEW JERSEY

Poliomyelitis Institute.—The New Jersey Poliomyelitis Institute will be held at the Academy of Medicine in Newark on June 9, and at the Walt Whitman Hotel, Camden, June 10. The morning program will be made up of the present concepts of the nature of poliomyelitis and its methods of spread, the treatment of early poliomyelitis and the management of patients with bulbar and respiratory difficulties. On the afternoon program, physical medicine and rehabilitation, prevention of deformities and roles of the Crippled Children Commission, State Department of Health and Rehabilitation Commission will be discussed.

NEW YORK

Personal.- Dr. Clinton P. McCord, Albany, has been appointed consultant in psychosomatic medicine to the New York State Department of Health.

Community Honors Health Officer.—More than 250 Irondequoit residents, school, town and health officials recently arranged a celebration in honor of Dr. Willis W. Bradstreet, the town health officer since 1918 and school physician for the Durand-Eastman School for twenty-five years. His diligence in establishing diphtheria and smallpox inoculation clinics in Irondequoit has resulted in more than 90 per cent protection of the resident children.

Dr. Beebe Heads Department of Medicine.--Dr. Richard T. Beebe has been appointed professor of medicine and director of the department of medicine at Albany Medical College effective July 1, succeeding Dr. L. Whittington Gorham, director since 1937. Dr. Beebe, a graduate of Johns Hopkins University School of Medicine, Baltimore, 1928, has been dispensary physician in charge of the outpatient department at the Albany Hospital, where he will become physician in chief.

Committee to Aid Handicapped Persons.—The Monroe County Medical Society has formed a permanent committee to deal with employment of physically handicapped persons in Rochester. The group, under the chairmanship of Dr. G. Kirby Collier, will distribute information to employers and employees on compensation and other state and federal laws governing the employment of handicapped persons; hold periodic employer institutes where the value of employing handicapped persons in different types of jobs will be stressed; disseminate information to handicapped persons explaining advantages open to them, through recognized agencies, to train and obtain employment. The committee will be known as the Rochester Committee for the Employment of the Handicapped.

New York City

Merge Obstetric and Gynecologic Services.—Beth Israel Hospital, Stuyvesant Park East and 16th Street, announces the merger of the obstetric and gynecologic services and the appointment of Dr. Henry C. Falk, New York, as director of the service.

Large Bequest for Research.—New York University was bequeathed more than $400,000 from the estate of the wife of the late Dr. Joseph Talbot Maclean. The terms stipulate that income from the bequest shall be applied to carrying on medical research. Dr. Maclean was a graduate in 1876 of Bellevue Hospital Medical College. After years of practice in Ohio and New York, Dr. Maclean died in 1920. Mrs. Maclean's death occurred July 10, 1947.

Columbia Given Eye Institute Library. - Columbia University Library has received as a gift the bibliography section of the library of the former Dartmouth Eye Institute. It was made possible through the efforts of Professor Clifford L. Treleaven, associate professor of optometry at Columbia, and Robert E. Bannon, formerly on the staff of the Dartmouth Eye Institute and now a member of the faculty of optometry at Columbia. The Dartmouth Eye Institute, formerly affiliated with the Dartmouth Medical School, closed in June 1947. Another gift is the private collection of Herman Gould, Brooklyn, retired, which includes a large number of books on vision and related subjects. The Dartmouth bibliography includes a 50,000 card index file of papers and several hundred reprints of articles related to investigations in binocular vision. There are also three hundred translations of important German publications relating to binocular vision, space perception, refraction, visual acuity and allied subjects.

NORTH CAROLINA

Academy of General Practice.—The North Carolina branch of the American Academy of General Practice was organized in Greensboro on February 22, with ninety physicians present. Dr. John R. Bender, Winston-Salem, was elected chairman and Dr. Roscoe D. McMillan, Red Springs, secretary and treasurer.

Cancer Clinic Opens.--A public cancer detection clinic in James Walker Memorial Hospital, sponsored by the New Hanover County Medical Society, opened April 27 in Wilmington. Dr. Ivan M. Proctor, director, state health board's cancer control division, and Mrs. George M. Marshall, commander, state division of the American Cancer Society, were the opening day speakers.

OHIO

Narcotic Violation.--The Bureau of Narcotics, Washington, D. C., reports that Dr. Charles R. Colburn, Osborn, pleaded guilty at Dayton to an indictment charging violation of the federal narcotic law and on January 28 was placed on probation for a period of two years.

State Medical Election.—At the annual meeting of the Ohio State Medical Association in Cincinnati, Dr. Arthur Brindley, Toledo, was installed as president and Dr. Carl A. Lincke, Carrollton, was named president-elect. The next annual meeting is to be held in Columbus the week of April 19, 1949.

Meeting at Zanesville.—At a meeting of the Muskingum County Academy of Medicine in Zanesville, May 13, Dr. Fred W. Rankin, Lexington, Ky., spoke on trends in the surgical treatment of cancers of the lower portion of the intestinal tract; Dr. Louis E. Prickman, Rochester, Minn., on diagnosis and treatment of asthma, and Dr. William D. Seybold, Rochester, Minn., on carcinoma of the lung and of the esophagus.

PENNSYLVANIA

Society News.—The Study Club of the Reading Eye, Ear, Nose and Throat Society was addressed May 5 by Dr. Ferris F. Ketcham, Reading, on "Pathologic Explanation of Common Ophthalmoscopic Findings."

Dietary Instruction for Diabetics.—The Philadelphia County Medical Society's diabetic committee, in collaboration with the Philadelphia Dietetic Association, is presenting four classes for the dietary instruction of diabetic persons at the Society Building, May 27, June 3, 10 and 17, from 7:30 to 9 p.m. Patients attending must have been enrolled by their physicians and must bring notes from their physicians indicating the particular diet recommended. General dietary instruction is given during the first half hour of the class and is followed by individual instruction. There is no registration fee.

VERMONT

State Medical Meeting.—The Vermont State Medical Society with the cooperation of the University of Vermont College of Medicine met May 27 at Burlington, where the following subjects were discussed: atomic energy, its application to medical practice; plastic surgery of the eyelids; diagnosis and treatment of ear infections; recognition and treatment of acute poliomyelitis, and surgical treatment of peptic ulcer.

WISCONSIN

Course in Poliomyelitis.—The University of Wisconsin Medical School, Madison, will present a course in poliomyelitis, June 28–July 3, covering the practical aspects of diagnosis and treatment. Each participating physician will have an opportunity to learn the technics of muscle testing, the application of hot packs, muscle reeducation and respirator care along with the epidemiologic aspects of the disease. The course has been arranged in cooperation with the Wisconsin county chapters of the National Foundation for Infantile Paralysis, and the Wisconsin Hospital Association. Details may be obtained from Dr. Llewellyn R. Cole, coordinator of graduate medical education, Medical School, 418 North Randall Avenue, Madison 6.

WEST VIRGINIA

State Medical Election.—At the recent meeting of the West Virginia State Medical Association, Dr. Thomas F. E. Bess, Keyser, was installed as president and Dr. Thomas G. Reed, Charleston, was made president-elect. Dr. T. Maxfield Barber, Charleston, was reelected treasurer for the twenty-second consecutive term. Dr. Walter E. Vest, Huntington, was reelected delegate to the American Medical Association for a two year term. A new section on neurology was created and will take over the functions of the neurology association organized in Huntington last September. It is the sixth section to be organized within the association.

GENERAL

University of Pittsburgh Alumni Luncheon.—The University of Pittsburgh Medical Alumni will hold a reunion luncheon in the South Ballroom of the Stevens Hotel, Chicago, June 23 at noon.

Electroencephalographers Meeting.—The American Electroencephalographic Society will hold its second annual meeting June 12–14 at the Claridge Hotel, Atlantic City, N.J. The presidential address by Dr. Herbert H. Jasper, Montreal, Canada, will be given at the dinner Saturday evening. The program includes a symposium on the physiologic basis of epileptic discharge.

Association for Study of Internal Secretions.—This association will hold its annual meeting June 18-19 at the Palmer House, Chicago, under the presidency of Dr. Cyril N. H. Long, New Haven, Conn. Ninety-one papers will be presented. The annual dinner will be June 18 at 7:30, when awards will be presented and the president will address the group.

Judd Awards.--At the opening of the Sloan-Kettering Institute for cancer research, April 16, Judd Awards were made to Professor Alexander Haddow, director, Chester Beatty Research Institute, Royal (Free) Cancer Hospital, London, for research on carcinogenesis, and to Dr. Eric Boyland, Ph.D., professor of biochemistry, University of London, for studies on the metabolism of carcinogens.

Medical Alumni Meeting.—The University of Pennsylvania Medical Alumni will hold a dinner at the convention of the American Medical Association, Chicago, Wednesday, June 23, at the Lake Shore Club, 850 Lake Shore Drive. On arrival in Chicago alumni should contact Miss Frances R. Houston, executive secretary of the Medical Alumni Society, at the University of Pennsylvania registration booth.

Meeting of Tuberculosis Physicians.—The American Academy of Tuberculosis Physicians will hold its annual meeting at the Palmer House, Chicago, June 19, under the presidency of Col. George F. Aycock, Nashville, Tenn. Among the subjects to be discussed are streptomycin-resistant tubercle bacilli, tuberculoma and meningitis, use of oleothorax for the unexpandable lung, and thiamine and methionine. The luncheon speaker will be Dr. William F. Petersen, Chicago.

Johns Hopkins Alumni Dinner.—The Alumni Association of Johns Hopkins University is sponsoring a dinner Thursday evening, June 24, during the American Medical Association meeting, to honor Drs. Helen B. Taussig and Alfred Blalock, who recently received the Passano Foundation Award for their development of the surgical treatment of " blue babies." The dinner will be in the Hotel Stevens, Chicago, at 6 p.m. and will be terminated to conform with the other meetings scheduled for that evening.

Conference of State Associations Officers.—The annual Conference of Presidents and Other Officers of State Medical Associations will meet at the Sheraton Hotel, Chicago, June 20, 12:30-5 p.m., under the presidency of Dr. L. Howard Schriver, Cincinnati. The group will be addressed by:

Joseph H. Howard, Bridgeport, Conn., Despotism by Consent of the Governed.
Paul R. Hawley, Washington, D.C., The Blue Shield-Blue Cross Program.
John W. Cline, San Francisco, Why a State Medical Association?

International Congress.—The International Federation of Sport-Medicine has announced its general assembly will be held June 29 in Prague, Czechoslovakia. The seventh International Medical Congress of Physical Education will be held July 1-5 in connection with the XI Sokol Festival, Prague. At the conclusion of the congress, trips through Czechoslovakia will be organized for the members. The application fee of 400 koruns allows for the railway reduction for the participation at the Sokol festival and for the Congress publications. Applications from abroad should be sent to Professor MUDr. Jiri Kral, Praha II., Vladislovova 15, Czechoslovakia.

Train Tuberculosis Fellows in Denver.—Four fellows, appointed by the Interim Commission of the World Health Organization from various countries, on July 1 will begin six months' free instruction in methods of tuberculosis prevention, control and treatment at the National Jewish Hospital, Denver. Beginning Jan. 1, 1949 the World Health Organization will send annually twelve fellows who will receive instruction at this hospital, the University of Colorado School of Medicine, Fitzsimons General Hospital and other Denver institutions. Traveling expenses fill be financed by the organization. Living expenses will be contributed by the International Foundation for Medical Research and Education.

Chest Physicians Annual Meeting.—The American College of Chest Physicians will meet at the Congress Hotel, Chicago, June 17-20 under the presidency of Major General Shelley U. Marietta (Retired), Washington, D. C. The guest speakers include:

Francisco Torres, Cordoba, Argentina, Pulmonary Resection in Tuberculosis.
Gumersindo Sayago, Cordoba, Argentina; Jose I. Baldo, Caracas, Venezuela; Arlindo de Assis, Rio de Janeiro, and Ismael Cosio Villegas, México D.F., México, experience with BCG vaccination in their respective countries.
Andre Soulas, Paris, France, Study of Bronchial Stenosis in Bronchopulmonary Tuberculosis.

Clinics and round table luncheons limited to twenty to thirty persons each have been scheduled.

Medical Milk Commissions.—The American Association of Medical Milk Commissions, Inc., will hold its annual convention at Avalon Hotel, Waukesha, Wis., June 18-21. Physicians and others interested in improving standards for production of milk are invited. On Saturday afternoon a seminar on nutrition and certified milk has been planned, the participants being Dr. Tom D. Spies, Chicago, Dr. Christian E. Segard, Madison, and Paul H. Phillips, Ph.D., Madison. Visits to certified milk farms in Waukesha County will begin at 10 a.m. Sunday. At the banquet Sunday at 7 p.m. Dr. John P. O'Neil, chairman, Committee on Nutrition, Chicago Medical Society, will speak on "What Does the Physician Want in Prescribing Certified Milk?"

International Poliomyelitis Conference.—Twenty international medical scientific authorities will present papers on poliomyelitis at the first International Poliomyelitis Conference at the Waldorf-Astoria Hotel, New York, July 12-17. Following are the speakers:

Albert B. Sabin, Cincinnati, Epidemiologic Patterns of Poliomyelitis in Different Parts of the World.

Irvine McQuarrie, Minneapolis, Evolution of Signs and Symptoms.

Herbert J. Seddon, Oxford, England, Economic Aspects of Management of Poliomyelitis.

David Bodian, Baltimore, Pathologic Anatomy.

Fritz Buchthal, Copenhagen, Denmark, Pathologic Physiology.

John A. Anderson, Salt Lake City, Diagnosis and Treatment.

Elexious T. Bell, Minneapolis, Progressive Pathology.

Arthur L. Watkins, Boston, Progressive Disabilities.

Ralph K. Ghormley, Rochester, Minn., Progressive Deformities.

William T. Green and Joseph S. Barr, Boston, Management of Poliomyelitis.

Karl T. Neubuerger, Denver, Bulbar Poliomyelitis: Pathologic Aspects.

Abe B. Baker, Minneapolis, Neurologic Signs in Bulbar Poliomyelitis.

James L. Wilson, Ann Arbor, Mich., Treatment of Bulbar Poliomyelitis.

Isabel M. Morgan, Ph.D., Baltimore, Mechanisms of Immunity in Poliomyelitis.

John R. Paul, New Haven, Conn., Immunogenic and Other Types of Poliomyelitis Viruses.

Raymond N. Bieter, Minneapolis, Experimental Chemo-Therapy.

Joseph C. Molner, Detroit, Public Health Measures.

Claude W. Munger, New York, Hospitalization.

Miss Elizabeth P. Rice, New Haven, Conn., The Families of Children with Poliomyelitis.

CORRECTION

Alcohol - Dextrose and Dextrose - Vitamin Solutions - The report on " Alcohol-Dextrose and Dextrose-Vitamin Solutions for Intravenous Infusion Not acceptable for N.N.R." which appeared under Council on Pharmacy and Chemistry in THE JOURNAL, May 29, pages 462-463, should be corrected to omit the last two paragraphs of the report as it appeared on page 463.

Marriages

LLOYD H. GOAD, Gary, Ind., to Miss Lois Elaine Otto in Sioux City, Iowa, January 4.

JOHN T. MORRIS, Birmingham, Ala., to Dr. SYLVIA J. BURBANK of Pleasantville, Iowa, January 1.

JOHN F. DIXON Jr., Garden City, N.Y., to Miss Ruth Hoerber of Ridgewood, recently.

NIGEL ARTHUR BUXTON to Dr. Elmira Mary Richli, both of Surat, Bombay Presidency, India, March 23.

EDWARD F. LEWISON to Miss Betty S. Fleischmann, both of Baltimore, March 21.

ARTHUR ATKINS SWEETSER Jr., Scranton, Pa., to Miss Jeanette Susanna Buczko of Mount Carmel January 31.

JOEL W. SALON to Miss Marilyn Green, both of Cleveland, April 11.

Deaths

Warren Coleman ⊕ Augusta, Ga.; born in Augusta, Ga., in 1869; University of the City of New York Medical Department, New York, 1891; professor emeritus of clinical medicine at the New York University College of Medicine; served as professor of clinical medicine at the University of Georgia School of Medicine; formerly professor of clinical medicine and applied pharmacology at Cornell University Medical College in New York; member of the Medical Society of the State of New York, Association of Military Surgeons of the United States, Association of American Physicians, American Association for the Advancement of Science, American Gastro-Enterological Association, American Genetic Association and others; fellow of the American College of Physicians; consulting physician to the Lenox Hill and Bellevue hospitals in New York; specialist certified by the American Board of Internal Medicine; died February 13, aged 79.

Joseph A. O'Hara ⊕ New Orleans; born in New Orleans Jan. 23, 1869; Medical Department of Tulane University of Louisiana, New Orleans, 1900; past president and executive officer of the state board of health of Louisiana; formerly professor of preventive medicine and public health, Louisiana State University School of Medicine; past president of the Louisiana Society for Mental Hygiene, Louisiana State Medical Society and Louisiana State Tuberculosis Commission; member of the Southern Medical Association, Southern Psychiatric Association and American Psychiatric Association; coroner of Orleans Parish from 1904 to 1925; served on the local draft board during World War I; for many years on the staff of De Paul Sanitarium; died at Hotel Dieu February 25, aged 79, of congestive heart disease and arteriosclerosis.

Thomas Raymond Healy ⊕ Boston; born March 13, 1879; Dartmouth Medical School, Hanover, N.H., 1899; specialist certified by the American Board of Radiology, Inc.; member of the Radiological Society of North America, Inc., American Roentgen Ray Society and the American College of Radiology; past president of the New England Roentgen Ray Society; served during World Wars I and II; formerly associated with the U. S. Public Health Service; affiliated with Amesbury (Mass.) Hospital, Anna Jaques Hospital, Newburyport, Benjamin Stickney Cable Memorial Hospital, Ipswich, and St. Elizabeth's Hospital; died February 25, aged 68.

Hawley Seager Sanford ⊕ Detroit; born in Milwaukee, Jan. 24, 1909; Harvard Medical School Boston, 1933; interned at the George F. Geisinger Memorial Hospital in Danville, Pa.; formerly a fellow in surgery at the Mayo Foundation in Rochester, Minn.; certified by the National Board of Medical Examiners; member of the Association for Research in Nervous and Mental Disease and of the Central Neuropsychiatric Association; a major in the Army Air Force during World War II; neuropsychiatrist on the staff of Henry Ford Hospital; died February 24; aged 39, of coronary sclerosis.

Walter Clifton Deakyne ⊕ Smyrna, Del.; born in Smyrna Del., Dec. 31, 1891; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1919; past president of the Medical Society of Delaware and of the Kent County Medical Society; served during World War I; served as examining physician for the New Castle County Selective Service Board 2 during World War II; on the staff of the Kent General Hospital in Dover; died February 11, aged 56, of coronary thrombosis.

William Sisson Gardner ⊕ Baltimore; College of Physicians and Surgeons, Baltimore, 1885; an Affiliate Fellow of the American Medical Association; served as treasurer and president of the Medical and Chirurgical Faculty of Maryland; fellow of the American College of Surgeons; professor emeritus of gynecology at the University of Maryland School of Medicine; for many years affiliated with the Mercy and University hospitals; died February 18, aged 86.

Augustus A. Babione ⊕ Luckey, Ohio; University of Maryland School of Medicine, Baltimore, 1903; died in Flower Hospital, Toledo, February 13, aged 75, of virus pneumonia.

Eugene D. Bergeron, Kankakee, Ill.; Chicago Medical College, 1881; died in St. Mary's Hospital February 11, aged 88, of coronary heart disease and cerebral hemorrhage.

William Farmer Briney, Chicago; Bennett Medical College, Chicago, 1897; died February 14, aged 78, of cardiovascular renal disease.

James A. Brown, Portsmouth, Va.; Leonard Medical School, Raleigh, 1903; died February 5, aged 70.

Mary Brown, Drexel Hill, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1892; died February 5, aged 86.

Frank N. Carrier, Santa Rita, N.Mex.; Jefferson Medical College of Philadelphia, 1893; fellow of the American College of Surgeons; died in a local hospital February 5, aged 75, of adenocarcinoma of the prostate.

Fred Clifford Cave, Oxford, Kan.; Barnes Medical College, St. Louis, 1903; member of the American Medical Association; served during World War I; died in Veterans Administration Hospital, Hines, Ill., Dec. 12, 1947, aged 71, of carcinoma of the bladder.

Leonidas William Cobun, Morgantown, W. Va.; Baltimore Medical College, 1898; member of the American Medical Association; past president of the Monongalia County Medical Society; died February 20, aged 78, of cerebral hemorrhage.

Arthur R. Collins, Watauga Valley, Tenn.; Tennessee Medical College, Knoxville, 1902; died in St. Elizabeth Hospital, Elizabethtown, February 19, aged 72.

John J. Conway, Warren, R.I.; Georgetown University School of Medicine, Washington, D. C., 1901; member of the American Medical Association; served as school physician, police surgeon and coroner; formerly chairman of the school committee and for a time superintendent of the local schools; died February 11, aged 70.

George A. Davis, De land, Fla.; Atlanta Medical College, 1890; member of the American Medical Association; for many years city and county health officer, and physician for the Florida East Coast and Atlantic Coast Line railways; died at the De Land Memorial Hospital February 20, aged 89.

Herman Clyde Duke ⊕ Richwood, Ohio; Eclectic Medical Institute, Cincinnati, 1898; for many years a member of the school board; president of the board of trustees of the Richwood Public Library, of which he had been one of the organizers; died February 7, aged 72, of angina pectoris.

Warner Leaming Eddy ⊕ Milan, Ill.; Rush Medical College, Chicago, 1892; past president of the Rock Island County Medical Society; served as mayor, member of the village council and board of health and president and member of the public school board; past president of the staff of St. Anthony's Hospital, where he died February 9, aged 78, of coronary occlusion.

Arthur Thomas Fagaly ⊕ Lawrenceburg, Ind.; Miami Medical College, Cincinnati, 1893; served during World War I; died February 11, aged 77, of myocardial degeneration.

Liberty Eaton Fellows ⊕ Newton, Iowa; University of Michigan Medical School, Ann Arbor, 1918; member of the American Medical Association; affiliated with the Mary Frances Skiff Memorial Hospital; died February 17, aged 55, of coronary thrombosis.

Edward L. W. Ferry, Millers Tavern, Va.; Medical College of Virginia, Richmond, 1900; member of the American Medical Association; died in the Johnston-Willis Hospital, Richmond, February 17, aged 74, of pulmonary thrombosis.

James H. Fiser, Malinta, Ohio; Toledo Medical College, 1894; member of the American Medical Association; affiliated with the S.M. Heller Memorial Hospital in Napoleon; died February 18, aged 84, of cerebral hemorrhage.

Cyrus Fisher, Central City, Iowa; College of Physicians and Surgeons, Keokuk, 1880; died January 20, aged 93, of heart disease.

Howard Bishop Garner ⊕ Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; fellow of the American College of Physicians; member of the Association of Military Surgeons of the United States; in 1905 member of House of Delegates of the American Medical Association; died February 13, aged 80.

James Shackelford Gay, Ashland, Ala.; Birmingham Medical College, 1905; member of the American Medical Association; died February 3, aged 69.

William Walden Gibbs ⊕ Chicago; Indiana University School of Medicine, Indianapolis, 1917; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; for many years affiliated with Provident Hospital, where he died February 15, aged 57.

Bruce Bentley Giffen, San Diego, Calif.; Ohio Medical University, Columbus, 1906; assistant superintendent of San Diego County Hospital, where he died February 9, aged 68.

Robert Rose Gillespy, New York; Tulane University of Louisiana School of Medicine, New Orleans, 1922; member of the American Medical Association and of the Medical Association of the State of Alabama; served during World Wars I and II; member of the medical board of the New York Life Insurance Company; died in New York Hospital February 17, aged 49, following a pneumonectomy.

Ernst Goldmann, Carlock, Ill.; Schlesische-Friedrich-Wilhelms-Universitat Medizinische Fakultat, Breslau, Prussia, 1923; interned at St. Mary's Hospital in Saginaw, Mich.; died February 18, aged 49, of heart disease.

Anna M. Gove ⊕ Greensboro, N.C.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1892; for many years college physician to the Woman's College of the University of North Carolina, where the college infirmary bears her name; died January 28, aged 80.

Henry James Graham, Mishawaka, Ind.; Detroit College of Medicine, 1900; fellow of the American College of Surgeons; past president of the St.Joseph County Medical Society; affiliated with St.Joseph Hospital; died February 6, aged 72, of coronary thrombosis.

William Perry Griffin, Carlsbad, N. Mex.; Marion-Sims College of Medicine, St. Louis, 1890; died February 13.

Thomas C. Guthrie, Smithville, Ark.; College of Physicians and Surgeons, Little Rock, 1908; member of the American Medical Association; past president of the Lawrence County Medical Society; died February 11, aged 67, of coronary occlusion.

Stanton Heck, Salem, Ohio; Medical College of Ohio, Cincinnati, 1889; formerly vice president of the American Roentgen Ray Society; for many years affiliated with the Salem City Hospital; died February 18, aged 85.

Nathan Just Helfgott, Washington, D. C.; Maryland Medical College, Baltimore, 1912; formerly practiced in Baltimore, where he was on the staffs of Johns Hopkins and Sinai hospitals; on the staff of the Doctors Hospital; died February 20, aged 62, of bronchiectasis and cardiovascular renal disease.

Ralph David Herlinger ⊕ Warren, Ohio; Johns Hopkins University School of Medicine, Baltimore, 1919; fellow of the American College of Surgeons; past president of the Trumbull County Medical Society; served during World War I; affiliated with the Trumbull Memorial Hospital, where he died February 2, aged 55, of complications following an appendectomy.

Henry Hofmann ⊕ Chicago; Northwestern University Medical School, Chicago, 1910; member and past president of the staff of St. Bernard's Hospital; died February 14, aged 62, of cerebral hemorrhage.

Charles Frederic Inlow ⊕ Shelbyville, Ind.; Rush Medical College, Chicago, 1922; served during World War I; formerly secretary of the city board of health; one of the founders of the Inlow Clinic; died in the University Hospital, Ann Arbor, Mich., February 14, aged 53, of hypertension.

Rutherford Bouchard Irones, San Diego, Calif.; Medical Department of the University of California, San Francisco, 1900; formerly mayor; served overseas during World War I; died in the Veterans Administration Center, Los Angeles, February 13, aged 70.

Guy S. Kirby, Marion, N. C.; University College of Medicine, Richmond, 1897; member of the American Medical Association; for many years county physician and surgeon for the Southern Railroad; affiliated with the Marion General Hospital; member and for many years chairman of the board of the State Hospital, Morganton; died in the Norburn Hospital, Asheville, February 15, aged 73.

Charles E. Lukens ⊕ Albuquerque, N. Mex.; St. Louis College of Physicians and Surgeons, 1898; served as superintendent of the Childrens Home and Hospital; died February 14, aged 78, of Paget's disease.

Frank Petrie Mabee, Detroit; Detroit College of Medicine and Surgery; 1919; member of the American Medical Association; fellow of the American College of Surgeons; affiliated with the Alexander Blain Hospital, Woman's Hospital and Grace Hospital, where he died February 11, aged 67, of hypertension.

Ethel Glen McPherson ⊕ Dearborn, Mich.; Indiana University School of Medicine, Indianapolis, 1923; died January 28, aged 51, of coronary thrombosis.

Samuel Thomas Millard, Topeka, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1906; member of the American Medical Association; served during World War I; on the staffs of Stormont, St. Francis and Christ's hospitals; died February 5, aged 71, of heart disease.

Herbert Strong Nichols ⊕ Portland, Ore.; Hahnemann Medical College and Hospital of Philadelphia, 1895; formerly assistant clinical professor of surgery at the University of Oregon Medical School; member of the North Pacific Surgical Association; fellow of the American College of Surgeons; affiliated with St. Vincent's Hospital and the Good Samaritan Hospital, where he died February 17, aged 79, of cerebral thrombosis.

Robert Tate Nowlin ⊕ Memphis, Tenn.; Memphis Hospital Medical College, 1913; member of the staff of St. Joseph Hospital, where he died February 28, aged 68.

Harry Otten ⊕ Springfield, Ill.; Rush Medical College, Chicago, 1912; formerly vice president of the Illinois State Medical Society; past president and vice president of the Sangamon County Medical Society; fellow of the American College of Surgeons; served as a trustee of the Springfield Medical Library Association; affiliated with St. John's Hospital and the Memorial Hospital, where he died February 18, aged 65, of coronary disease and fracture of the pelvis as the result of a fall on the ice.

Patrick Henry Owens ⊕ Kansas City, Mo.; University of Kansas School of Medicine, Kansas City, 1912; deputy coroner and formerly county coroner; served during World War I; affiliated with St. Mary's, St. Margaret's and St. Joseph's hospitals; died February 11, aged 64, of coronary occlusion.

Moses D. Pass, Broadwater, Neb.; Cleveland Medical College, Homeopathic, 1896; Kentucky University Medical Department, Louisville, 1899; died in Kearney, February 17, aged 86.

Otto Pfaff ⊕ Oneida, N.Y.; University of the City of New York Medical Department, New York, 1888; past president of the Fifth District Branch of the Medical Society of the State of New York; served as mayor of Oneida, city health officer, president of the water board, county coroner and postmaster; an officer during World War I; for many years surgeon for the New York Central Railroad; died in the City Hospital February 19, aged 84, of cerebral accident.

George Lawrence Pike, Gladwyne, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; affiliated with Gladwyne Colony; died February 17, aged 71, of cerebral thrombosis.

Albert Porter, Cleveland Heights, Ohio; Cleveland Homeopathic Medical College, 1899; died February 14, aged 81, of arteriosclerotic heart disease and diabetes mellitus.

Francis Joseph Ready, Washington, D. C.; Georgetown University School of Medicine, Washington, 1913; member of the American Medical Association; formerly associate professor of clinical medicine at his alma mater; served during World War I; died in the U.S. Naval Hospital, Bethesda, Md.; February 19, aged 62.

Sidney D. Redmond, Jackson, Miss.; Illinois Medical College, Chicago, 1897; also an attorney; died in the Baptist Hospital February 11, aged 76, of paralytic ileus.

Philander Chase Riley ⊕ Lieutenant Colonel, U. S. Army, retired, Fayetteville, N. C.; Columbian University Medical Department, Washington, D.C., 1899; served during World War I; entered the medical corps of the U. S. Army as a major on Sept. 14, 1920; promoted to the rank of lieutenant colonel on Aug. 8, 1937; retired Feb. 28, 1939; returned to active duty on Feb. 18, 1941, serving until Jan. 5, 1944; died February 14, aged 72.

Leon Jerome Robinson ⊕ Palmer, Mass.; Boston University School of Medicine, 1934; interned at the Boston City Hospital; certified by the National Board of Medical Examiners; specialist certified by American Board of Psychiatry and Neurology, Inc.; clinical director of research in epilepsy at the Monson State Hospital; died in the Springfield (Mass.) Hospital February 1, aged 41, of cerebral hemorrhage.

Emma L. Sabin Sherman, Los Angeles; New York Medical College and Hospital for Women, Homeopathic, New York, 1901; died February 13, aged 93.

Ernest Frederick Sickenberger, Woodridge, N.J.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1895; also a graduate in pharmacy; died in Hackensack (N.J.) Hospital February 10, aged 88, of peptic ulcer.

Frank Farrow Simpson, Honolulu, Hawaii; University of Pennsylvania Department of Medicine, Philaphia, 1893; fellow and formerly member of the board of regents of the American College of Surgeons; served during World War I; died February 10, aged 80, of complications following pneumonia.

Philip Sheridan Steelman, Linwood, N.J.; University of Pennsylvania Department of Medicine, Philadelphia, 1894; died in Shore Memorial Hospital, Somers Point, January 13, aged 80, of arteriosclerosis, arthritis and intestinal obstruction.

Myron Scott Stringer, Florence, Ala.; Emory University School of Medicine, Atlanta, 1923; at one time a member of the faculty of his alma mater; died February 13, aged 46, of heart disease.

William Van Zanten, Sheboygan, Wis.; Milwaukee Medical College, 1902; member of the American Medical Association; formerly county coroner; died in St. Nicholas Hospital February 16, aged 78.

Thomas Dupree Vassar, Lakeland, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1912; member of the American Medical Association; served on the state board of medical examiners; died February 12, aged 60.

James Oliver Wallace ⊕ Pittsburgh; University of Pennsylvania Department of Medicine, Philadelphia, 1906; formerly on the faculty of the University of Pittsburgh School of Medicine; specialist certified by the American Board of Orthopaedic Surgery, Inc.; member of the American Orthopaedic Association; fellow of the American College of Surgeons; on the staffs of Mercy, Children's and Suburban General hospitals; died February 7, aged 71, of coronary occlusion.

Henry V. Walter, Rothsville, Pa.; Jefferson Medical College of Philadelphia, 1904; member of the American Medical Association; past president of the Lancaster County Medical Society; served on the staff of St. Joseph's Hospital in Lancaster; died January 28, aged 69, of coronary thrombosis.

James Blaine Walton, Denver; University of Colorado School of Medicine, Denver, 1919; member of the American Medical Association; died in St. Luke's Hospital February 6, aged 63, of cerebral hemorrhage.

Charles Edgar Welch ⊕ Nelsonville, Ohio; Hahnemann Medical College and Hospital, Chicago, 1896; served during World War I; past president of Athens County Medical Society; president of the First National Bank; died February 18, aged 76, of coronary occlusion.

Herman Joseph Whitehead, Union, Iowa; State University of Iowa College of Medicine, Iowa City, 1897; died in St. Joseph's Sanatorium, Dubuque, February 10, aged 86, of acute cardiac dilatation and arteriosclerosis.

Lee Adrian Whitney ⊕ Rochester, N.Y.; University of Buffalo School of Medicine, 1901; affiliated with the Craig Colony, Sonyea, and St. Mary's, Genesee, Rochester State, Monroe County and Park Avenue hospitals; died February 14, aged 74.

Neri Barndt Williams ⊕ Perkasie, Pa.; Jefferson Medical College of Philadelphia, 1892; also a graduate in pharmacy; died February 4, aged 84, of intestinal obstruction.

Jacob B. Young, Somerset, N.Y.; University of Buffalo School of Medicine, 1900; died January 2, aged 85, of diabetes mellitus and gastric ulcer.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 30, 1948.

Regulations for the National Health Service

Though no attempt at agreement between the government and the British Medical Association has been made, the former continues to publish regulations which come into force on July 5. These include details which will be required of dentists and doctors accepting service, and particulars of payment and the method by which the public can select their practitioners. They must choose a practitioner from any local list and present him with a medical card. Physicians for children under 16 years will be chosen by their *mothers or, in their absence, by their fathers*, or, in the absence of both, by guardians. For persons incapable by reason of old age, sickness or infirmity, physicians will be chosen by relatives or others having charge of them. Patients will have the right to change their doctors and to have the temporary services of others while moving from place to place or while on holiday. On the other hand, a physician can have a patient removed from his list at any time by giving seven days' notice. But the medical practitioners of each area will be collectively responsible for all service patients under a general allocation scheme.

No doctor practicing alone may have more than 4,000 public patients on his list. In the case of two or more practitioners in partnership, the maximum number of any one partner must be 5,000, but the average for all the partners must not exceed 4,000. Where permanent assistants are employed the number of patients may be increased to an extent not exceeding 2,400 in respect to each assistant. The practitioner's duty to the patient includes "all proper and necessary treatment" but not services involving the application of special skill or experience of a degree or kind which general practitioners as a class cannot reasonably be expected to possess. If such treatment is available as part of the hospital and specialist services, the patient must be informed of the fact, and, if he desires to avail himself of it, the practitioner must take the necessary steps to enable him to receive such treatment. For maternity services the executive councils must keep separate lists of practitioners having obstetric experience, from which a woman may select one if her own doctor is not on it.

With regard to remuneration, a fixed annual payment of $1,200 is to be made to the practitioner, provided he has the minimum number of patients, a capitation payment and payments in respect to temporary residents, for emergency treatment of a person not on his list, in respect to mileage and in cases where the services of a second practitioner are required for administration of an anesthetic. In addition there are to be inducement payments in areas sparsely populated or for any other reason unattractive to practitioners. Also, payments will be made for the training of assistants. Superficially the scheme appears to be well devised to meet every contingency. But, apart from the objections previously given, there is the great snag of flooding doctors' offices with hypochondriacs when all medical treatment is free, leaving the overworked practitioner insufficient time for those really ill.

The Independence Fund of the British Medical Association

The Special Representative Meeting of the British Medical Association decided to establish an Independence Fund to provide financial aid to practitioners who may suffer hardship in the event of the continuation beyond July 5 of the conflict between the medical profession and the government and to provide, through local Independence Committees throughout the country, an organization for maintaining the unity of the profession in its determination not to accept service under the National Health Service Acts until such amendments have been made as will preserve the freedom of the profession. The National Insurance Defence Trust, already established, has deposited with the fund an initial contribution of $1,600,000. The trustees of the fund are appealing to individual physicians to give what they can to make the fund effective. They suggest that there are few practitioners in established practice who cannot afford to give $400 as a first contribution. In their appeal the trustees say: "The danger to the independence of our profession is a measure of the need for generous giving. We appeal to you to give all you can afford to conserve the freedom which neither we nor the public can afford to lose."

International Congress of Industrial Medicine

The ninth International Congress of Industrial Medicine will be held in London Sept. 13-17. The first congress was held in 1906 and the last, ten years ago, the long interval being due to the war. There will be six sections dealing with the various aspects of industrial health, social, environmental, nursing, clinical, practical and special. Rehabilitation will be dealt with separately. Among the topics to be discussed are: young persons in industry; the determination of dusts in air; administration and training; dermatology, burns; industrial medicine in the tropics, and the training of industrial medical officers. Arrangements have been made to visit rehabilition centers, clinics and hospitals. Those who want further information should communicate with the Organizing Secretary, Room 501, Garden Court Wing, B.M.A. House, Tavistock Square, London, W.C. 1.

ITALY

(From Our Regular Correspondent)

March 23, 1948.

Streptomycin for Trachoma

Focosi and Scalfi of the university in Sassari reported to the Association of Experimental Biology the results of their efforts to cure trachoma with streptomycin alone or combined with sulfonamide compounds.

The streptomycin was applied in the form of a lotion for the eyes, each drop containing about 1,000 gammas (1 mg.) of the substance.

In 2 cases of papillary trachoma subconjunctival injections of a streptomycin solution in addition to the instillations were given (into the conjunctival fornix and in the folds of the passage). The speakers concluded that streptomycin has a therapeutic effect on the trachomatous nodule, but it may not become manifest before thirty days of continuous treatment. The combined use of streptomycin and sulfonamide compounds did not demonstrate any particular therapeutic efficiency. In cases of florid trachoma the streptomycin had little or no effect. The trachomatous pannus was benefited by the streptomycin, but the effect of the streptomycin was in general not superior to that of the sulfonamide compounds.

The Municipal Medical Association

The Italian Municipal Medical Association held its national congress in Montecatini Terme. Problems for discussion included the municipal physician, pensions, relationship with the Supreme Reciprocity Board and the project of the Public Health League. Concerning a public health career, the congress expressed its vote that the profession should be freed from actual dependence on the community and should be regionalized or provincialized. Concerning the pensions and considering the devaluation of the lira, the request was confirmed to adapt the salaries of these public health men to the actual costs of living. Professor Lucente of Rome also recommended a scheme of reform for the pension funds.

The relationship with the Reciprocity Board, which just now presents the most burning problem for the profession, the subject of a report by Dr. De Vita, was discussed vigorously without reaching a decision. It was decided that an appropriate commission should study the new requests of the members of the medical profession. The next congress will be held in Naples.

Allergy and Appendicitis

At a meeting of the Italian Society of Experimental Biology at Sassari, Dr. Giuseppe D'Aste reported his research on allergy in the pathogenesis of appendicitis. The results of this research seem to confirm the suspicion that in certain forms of appendicitis the allergic-hyperergic mechanism of some alimentary substances may play an important part in the pathologic and clinical picture of appendicopathy. While these substances constitute a physiologic stimulus to reaction in normal persons, they may become pathologic stimuli in other subjects who present a specific neurohormonal dysmorphism.

Hormones and Tumors

At the Medical Academy "Filippo Pacini" at Pistoia, Professor Bruno Borghi, director, general pathologic institute, and acting president of the University of Florence, discussed the relation between hormones and tumors. By examining the experimental data concerning the possible formation of cancerogenic substances directly derived from hormones in the organism, and particularly from sex hormones, the speaker reached negative conclusions, making all similar concepts unworthy of consideration.

With regard to the cancerogenic function exercised by the follicular hormone on the mammary glands, results have demonstrated that the hormone does not act as a true agent of neoplasia but only as an accessory factor which prepares the way for normal phenomena of proliferation in which the cancerous degeneration may be induced by hereditary factors. In strains of mice in which such hereditary factors do not exist the follicular hormone does not produce any neoplasia.

Testosterone does not seem to be endowed with oncoblastic property, either directly or indirectly. The same may apply to the hormones obtained from other endocrine glands including Evans' hormone, which proved to activate normal growth exclusively.

Discussion of Infravirus

At a meeting of the Academy of Science of Ferrara, Professor de Gaetani discussed the problem of infravirus. He emphasized that the study of infravirus may be limited to the special corpuscles capable of provoking a pathogenic action which could be reproduced with the filtrate of the tissue fluid of the affected subject; there may therefore be excluded from this study the true inframicrobes, the filtrable phases of some of the microbes and the lesions produced by some hematophage metazoa. The study of such corpuscles has demonstrated that they are of variable size from 10 to 175 millimicrons; their form is nearly always asymmetric, and they are exceptionally crystalline; membrane and organized structure are missing; the chemical composition is eminently nucleoproteid, and lipids may sometimes be present; they are deprived of water and of respiratory and nutritive activity; their enzymatic system is incomplete. The pathogenic mechanism is a disintegrating one which disturbs the metabolic activity of the cells and may contribute to lysis of the cells or to their proliferation in a granulomatous or neoplastic sense.

As to the nature of infraviruses, one cannot deny that they are an extremely elementary form of life based on an intramolecular rather than an intermolecular organization. One cannot deny, on the other hand, that they are inert in themselves.

MADRID

(From Our Regular Correspondent)

April 25, 1948.

Work of Dr. Pascual

Dr. E. Oliver Pascual, professor at the Madrid General Hospital, has been appointed official discussant to the Inter-American Congress of Digestive Pathology and Nutrition to be held at Buenos Aires. He will discuss "Noncalculous Hepatopathies."

Since 1930 Professor Oliver has done research on many problems of the digestive system and nutrition. By studying deficient diets, especially those lacking in vitamins of the B complex, he proved the appearance of an intestinal dysbacteriosis that increases susceptibility to infection, which in turn sets up dysbacteriosis and demands an increase of vitamins and other factors in the diet. This dysbacteriosis in his opinion is part of a clinical entity, viz., "hepatoenteropathy," and is never absent in any case of hepatoenteric disorder. Dr. Oliver's research on the intestinal flora revealed that in all hepatoenteropathies the organism's requirements of liposoluble and hydrosoluble vitamins and, sometimes, of certain salts are increased. In studying the intestinal flora in patients with deficiency diseases he found salmonellosis in many who have multiple hypovitaminosis. By implanting a normal breed of colon bacilli he succeeded in normalizing nutritional deficiencies and in some cases obtained as good results as those arrived at with sulfaguanidine.

He began the study of dysbacteriosis in 1935 and showed that summer diarrheas are really hepatoenteric reactions in which sometimes the gallbladder plays a part, and sometimes the pancreas or the appendix, while at other times gastric symptoms are lacking even though there is atropic gastritis with achlorhydria.

In recent years, Professor Pascual has concentrated on the pathology of the small intestine, and to him and his collaborators - Arias Vallejo, Torres, Montejo, Luengo, Oliver (Jr.), Galan, Hernandez, Castillo, Costi and Vega Diaz, - priority is due in relation to research on this subject undertaken in Spain. Their papers have appeared in various Spanish journals (*Semana medica espanola, Clinica y laboratorio, Revista clinica espanola,* *Medicina clinica,* and *Revista espanola de las enfermedades del aparato digestivo y de la nutricion,* of the last-named journal, Dr. Oliver Pascual is editor).

New Professors at University of Madrid

After a competitive examination, the Chair of Urology in the Madrid Faculty of Medicine has been awarded to Dr. Alfonso de la Pena, a son of the doctor who until recently held the same chair at Madrid. He has been trained in various centers of Europe and America. A licentiate of the Madrid Faculty of Medicine (1927), he was fellow in urology at the Mayo Clinic, Rochester, Minn., and held a bursary at the Memorial Hospital, New York. For two years he worked in Professor von Lichtenberg's Urology Department in Berlin, where he did research. In 1944 he again visited the North American universities. He is the author of several books and the originator of various technics in his specialty.

Also in a recent competitive examination, Dr. J. Botella Llusia was awarded the Chair of Obstetrics and Gynecology at the Madrid Faculty of Medicine. He succeeds Professor M. Varela Radio, one of the younger masters, who was, however, excluded from his chair from political and personal motives. Professor Botella Llusia, son of a famous Madrid gynecologist, is now taking up teaching in Madrid after having held a similar position (also won by competitive examination) at a provincial university. He brings to his work the strength and all the enthusiasm of his youth.

BRAZIL

(From Our Regular Correspondent)

SÃO PAULO, April 23, 1948.

Intestinal Parasitosis in Employees

Based on records from the Institute of Pensions and Retirements for Commercial Employees, Drs. Merrame Adura and Jose Gentil presented a study of the incidence of intestinal parasites in 2,556 employees.

The cases were detected among 14,000 patients attended in 1946 by the Medical Ambulatorium of the institute.

Centrifugation and fluctuation in zinc sulfate, as recommended by Faust and associates, was the method used; they employed also the direct method after a saline purge, whenever required by the physician. There were 3,228 tests made of which 3,145 were by the Faust method and 83 by direct examination. In a majority of cases repetition of tests was necessary for diagnosis (1,038) and in some cases (85) for therapeutic control. Eight hundred and sixty patients manifested protozooses; 295 had worm infestation and 235 showed associated parasitoses; this was a total of 1,480, or about 57.9 per cent of the group studied.

The Institute of Pensions and Retirements for Commercial Employees gives medical aid to industrial employees, teachers, bookkeepers, barbers and owners of commercial magazines.

Drs. Merrame and Gentil said that if the real incidence of amebiasis is considered (as Dacio de Amaral calculated it) then the percentage of results positive for Endameba histolytica will be not 10 per cent but double that figure, and there will be not 57.9 per cent but practically 68 per cent, a high incidence of intestinal parasitoses in large cities. Prominent among the protozooses are amebiasis and giardiasis. Among helminthiases are ancylostomiasis (hookworm), strongyloidiasis, ascariasis (roundworm) and hymenolepiasis. Amebiasis alone showed an incidence of 20.68 per cent.

Clinical signs were, as a rule, varied and generally vague: anemia, vague abdominal pains and constipation. Many patients had not called a physician, but for other reasons, such as getting a small loan, they were subjected to medical examination and a stool specimen sent to the laboratory; it was impossible to find out how many of these persons had been clinically suspected of amebiasis. As to Isospora, no diagnosis of species was made. They found Isospora in 8 carriers among 2,556 patients examined.

High Abdominal Spinal Anesthesia

Dr. Piragibe Nogueira, of the Faculty of Medicine of the University of Sao Paulo, discusses the present situation of high abdomen anesthesia. He believes that there are good indications for spinal anesthesia in selected cases.

Dr. Piragibe's own experience with the high abdomen spinal anesthesia is reported. Until March 1947 its indication was limited to the cases in which the regional anesthesia was thought to be ineffective and the patient showed normal circulation and respiration systems.

Dr. Piragibe mentions his previous papers on the high abdomen spinal anesthesia to call attention to the line of conduct he has adopted since July 1946, viz., to practice it only by the Lemmon process which permits the administration of an initial harmless dosage followed by maintenance doses injected during the course of the operation, considering the muscular tonus of the abdominal wall whose relaxation decreases before the painful sensitivity reappears in the procaine hydrochloride anesthesias.

He discuses the Jones and Sebrechts processes to obtain the high abdomen spinal anesthesia with hypobaric "nupercaine" 1:1,500 and concludes from his own experience that in the Jones process notwithstanding the individualization of the dosages, there is no safety because it is impossible to control the anesthesic level with one dosage only; in the Sebrechts process the gradual application of the dosage which will obtain the desired anesthesia gurantees safety, and Dr. Piragibe has always observed a dosage decrease in comparison with that of the Jones process; however, it was found that the anesthesia period was insufficient.

Studying three series of spinal anesthesia in the high abdomen, he proves, taking in account the causes of the accident, that safety and desirable duration of anesthesia are combined only in the Lemmon technic. Dr. Piragibe has been employing this technic with a 6 per cent procaine hydrochloride solution in the spinal fluid; that solution is clearly hyperbaric.

Dr. Piragibe ends by demonstrating that the Lemmon process permits the Mirizzi's operative cholangiography so valuable in bile duct surgery.

Gastric Cancer

Drs. Francisco J. Nocito and Guillermo F. Cottini from Hospital Alvear of Buenos Aires, Argentina, presented in Rio de Janeiro at the fourth Inter-American Congress of Surgery a study of 213 cases of gastric cancer observed during 1933 to 1947. The number of patients operated on was 190, or 89.2 per cent. Gastric resection was performed on 84, or 39.43 per cent, of the patients. The death rate for gastrectomy was 26.19 per cent. A follow-up of 30 patients showed 8 survivors after more than five years, that is, 26.6 per cent.

Medical Motion Pictures

FILM REVIEWS

Transthoracic Esophageal Diverticulectomy. 16 mm., color, silent, 590 feet (two reels), showing time twenty-four minutes. Prepared in 1948 by and procurable on loan or purchase from Philip Thorek, M.D., 25 East Washington Street, Chicago 2.

This motion picture shows a transthoracic excision of a diverticulum of the lower third of the esophagus. These operations have been made feasible and safe by the development of the antibiotics, by the easy availability of blood for multiple transfusions and by the relatively recent emergence of a school of well trained physician-anesthetists. Formerly infection, shock and respiratory difficulties combined to make the mortality prohibitively high.

The author should omit pointing and gestures in the first part of the film, although such are useful in demonstrating the diverticulum. The color quality is excellent; however, it is obvious that the camera was held by hand. Use of a tripod would have produced a more satisfactory picture. In a few scenes a more advantageous selection of the camera position would have provided a better view of the cavity.

Because the condition is rare, the operation should interest surgeons who do this work; because it demonstrates the case and safety with which such operations can now be performed, it should contribute greatly to their education.

Schistosomiasis. 16 mm., color, sound, 975 feet (one reel), showing time twenty-seven minutes. Prepared in 1946 by the War Department. Procurable on loan from the Army Surgeon of the Army area in which the request originates.

The film touches on the history and geographic distribution of the three types of schistosomiasis, giving good clinical pictures of infected natives and servicemen, demonstrating by animation the route that the parasites take in the body. There are two places where the film could be improved. In the first blood smear the eosinophils are not clear. The second time this is shown, the eosinophils are well brought out. In the smears of the stool it might be wise to use a pointer to indicate the position of the ova. A diagram of the complete cycle would make the subject clearer for those who are not familiar with schistosomiasis.

The photography, including photomicrography is good. The native scenes in regions where schistosomiasis is endemic are colorful and interesting. The close-up scenes of the snails and cercaria are impressive. Several sequences manifest poor photographic reproduction. The animation and narration are also good. This film is suitable for hospital staff meetings and for medical students. It is not intended for the public.

Precancer Diagnosis of Cervix by Cytology. 16 mm., color, sound, 1,300 feet (one reel), showing time thirty-six minutes. Prepared in 1947 by J. Ernest Ayre, M.D., director, Gyne-Cytology Laboratory, Royal Victoria Hospital, McGill University, Montreal, Canada. Procurable on rental from the Clay-Adams Company, Inc., 44 East Twenty-Third Street, New York 10.

The cytologic study of vaginal smears initiated by Papanicolaou has taken the country by storm. Its popularity in medical and to a still greater extent in nonmedical circles has not been an unmixed blessing. This makes particularly desirable a film for thorough instruction in the various technics involved in the study of smears from the vagina and cervix. Few could equal Dr. Ayre's qualifications for doing just that kind of a job.

The film presents case reports, gross appearance of cervical lesions, the technic of obtaining material, making and staining smears, the microscopic appearance of cytologic details, correlation with histologic observations in biopsies and, finally, interpretation. Much of what is shown bears the imprint of Dr. Ayre's own contributions, especially in the method of collecting cervical material. The difficulties of interpretation of borderline cases have not been sufficiently stressed; the lettering on the chart entitled "Ayre's select technic of cytology" is not clear, and the canceled envelop bearing the name of the film's author may be misinterpreted by some observers. These are indeed minor defects in an otherwise satisfying and didactically effective film. In many scenes the color quality of the film is not good. This appears to be the result of poor reproduction of an otherwise satisfactory original picture. The film gives a thorough review of the methods involved.

Miscellany

MEDICAL CARE IN ETHIOPIA

The World Health Organization Mission in Ethiopia has been operating since Jan. 1, 1947 as a continuation of the health activities of the United Nations Relief and Rehabilitation Administration mission in that country. In March the activities and positions of the mission were regularized by the signing of an agreement between the Interim Commission and the imperial Ethiopian government. Ethopia was among the first countries to ratify the constitution of the World Health Organization.

The health needs of Ethiopia are almost limitless. With not a single indigenous doctor or nurse for a population of about 12,000,000, dependence on foreign aid is essential for some years. There are at present some seventy foreign physicians in the country, of whom forty-two are in Addis Ababa, and about the same number of nurses. A committee on medical education recently made what is considered to be a conservative estimate of the needs of the country and put these at about one thousand two hundred medical assistants, three hundred nurses, two thousand dressers and one thousand two hundred sanitary inspectors: altogether, with other auxiliary workers, about five thousand technically trained persons are required.

In the hospitals elementary equipment is often lacking. A female dresser in one of the World Health Organization's nursing classes, which was shown a film on "Bathing the Patient," commented that "we should like to give care like that to our patients but we do not have a washbasin, pan or pitcher in our ward," and this was confirmed by inspection. Sanitation is another vast problem, but fortunately food is abundant and the diet well balanced.

Faced with these problems, the World Health Organization Mission in the closest collaboration with the vice minister of health and his advisers, decided to concentrate on three main tasks: to give elementary training in nursing and sanitation to dressers and sanitary officers; to assist the municipality of Addis Ababa in sanitation; and to assist the ministry of health in investigating and dealing with epidemics in the outlying provinces. These tasks have tried the small staff—originally two doctors, three nurses and a secretary—to the utmost.

Elementary courses for dressers in four hospitals have been completed and a more advanced course begun at the Menelik Hospital. Eighty-five dressers have now received official certificates as a result of examinations by an independent examining board. Help has been given in establishing courses for dressers at hospitals in outlying provinces, and a manual in Ethiopian for the training of dressers has been produced. All reports show the great relief afforded to the inadequate imported nursing staffs of government and mission hospitals by even the most elementary training of local dressers.

Two elementary courses for sanitary inspectors have been completed. The best candidates from both courses will be selected for more advanced secondary training. Both in the courses for dressers and for sanitary officers, and in schools and at public meetings, much use has been made of motion pictures for demonstration purposes. So far, only the surface of the almost virgin soil of Ethiopian health problems has been scratched. The new grant from the United Nations Relief and Rehabilitation Administration for 1948 should, if the government wishes it, allow these unobtrusive yet essential activities to continue and perhaps expand.—*Chronicle of the World Health Organisation,* December 1947.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Application of Federal Food, Drug and Cosmetic Act to Intrastate Sales.—The respondent, a retail druggist in Columbus, Ga., was charged with a violation of Section 301(*k*) of the federal food, drug and cosmetic act of 1938, which section prohibits the performance of any act with respect to a drug "if such act is done while such article is held for sale after shipment in interstate commerce and results in such article being misbranded." The respondent was convicted in the trial court but obtained a reversal of that conviction by the circuit court of appeals (*Sullivan v. United States*,, 161 F. (2d) 629; *J.A.M.A.* 135:53 [Sept. 6] 1947), so the government appealed to the Supreme Court of the United States.

A laboratory had shipped in interstate commerce from Chicago to a consignee at Atlanta, Ga., a number of bottles, each containing one thousand sulfathiazole tablets. These bottles had labels affixed to them, which, as required by section 502(*f*) paragraphs 1 and 2 of the act, set out adequate directions for the use of the tablets and adequate warnings to protect ultimate consumers from dangers incident to this use. The respondent bought one of these properly labeled bottles of sulfathiazole tablets from the Atlanta consignee, transferred it to his Columbus, Ga., drugstore, and there held the tablets for resale. On two separate occasions twelve tablets were removed from the properly labeled and branded bottle, placed in pill boxes and sold to customers. These boxes were labeled "sulfathiazole." They did not contain the statutorily required adequate directions for use or warnings of danger. The circuit court of appeals, said the Supreme Court, interpreted the statutory language of section 301(*k*) "while such article is held for sale after shipment in interstate commerce" as though Congress had said "while such article is held for sale by a person who had himself received it by way of a shipment in interstate commerce."

One reason given by the circuit court for refraining from construing the act as applicable to articles misbranded while held for retail sale, even though the articles had previously been shipped in interstate commerce, was its opinion that such a construction would raise grave doubts as to the act's constitutionality. A restrictive interpretation should not be given a statute merely because Congress has chosen to depart from custom or because giving effect to the express language employed by Congress might require a court to face a constitutional question, said the Supreme Court. When it is reasonably plain that Congress meant its act to prohibit certain conduct, the foregoing reason does not justify a distortion of the congressional purpose, even if the clearly correct purpose makes definite deviations from custom or leads inevitably to a holding of constitutional invalidity. Although criminal statutes must be so precise and unambiguous that the ordinary person can know how to avoid unlawful conduct, they should be given their fair meaning in accord with the evident intent of Congress.

Another consideration that moved the circuit court of appeals to give the statute a narrow construction was its belief that the holding in this case with reference to misbranding of drugs by a retail druggist would necessarily apply also to "similar retail sales of foods, devices and cosmetics, for all these," the court said, "are equally covered by these provisions of the act." The scope of the offense which Congress defined, said the Supreme Court, is not to be judicially narrowed by envisioning extreme possible applications of its different misbranding provisions. There will be opportunity enough to consider such contingencies should they ever arise. Furthermore, continued the Supreme Court, the administrator of the act is given rather broad discretion; for example, he is given extensive authority to issue regulations exempting from the labeling requirements many articles that otherwise would fall within this portion of the act.

When we seek the meaning of section 301(*k*) from its language, said the Supreme Court, we find that the offense which it creates and which is here charged requires the doing of some act with respect to a drug (1) which results in its being misbranded (2) while the article is held for sale "after shipment in interstate commerce." It would require great ingenuity to discover ambiguity in the additional requirement of section 301(*k*) that the misbranding occur "while such article is held for sale after shipment in interstate commerce." The words accurately describe the respondent's conduct in this instance. He held the drugs for sale after they had been shipped in interstate commerce from Chicago to Atlanta, Ga. It is true that the respondent bought them nine months after the interstate shipment had been completed by their delivery to another consignee. But the language used by Congress broadly and unqualifiedly prohibits misbranding articles held for sale after shipment in interstate commerce, without regard to how long after the shipment the misbranding occurred, how many intrastate sales had interveded or who had received the articles at the end of the interstate shipment.

Finally, it was contended that the act as we have construed it is beyond any authority granted Congress by the Constitution and that it invades the power of the states. A similar challenge was made against the Pure Food and Drug Act of 1906 and was rejected in *McDermott v. State of Wisconsin*, 228 U. S. 115. That act, said the Supreme Court, did not contain section 301(*k*) but it did prohibit misbranding and authorize seizure of misbranded articles after they were shipped from one state to another, as long as they remained "unsold." The reasons given for the McDermott holding, concluded the Supreme Court, are equally applicable and persuasive here even though in the McDermott case the labels involved were on the original containers but here the labels are required to be put on other than the original containers—the boxes to which the tablets were transferred, and even though in the McDermott case the possessor of the labeled cans held for sale had himself received them by way of an interstate sale and shipment but here, while the petitioner had received the sulfathiazole by way of an intrastate sale and shipment, he bought it from a wholesaler who had received it as the direct consignee of an interstate shipment. Accordingly the decision of the circuit court of appeals was reversed and the respondent's conviction sustained.—*United States v. Sullivan, 68 S. Ct. 331 (1948).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American Journal of Public Health, New York

38:1-144 (Jan.) 1948

Child Feeding in Europe Under International Children's Emergency Fund. Martha M. Eliot. -p. 1.

Prospects of Improving Food Supply of Orient. R.R. Williams. -p. 8.

Analysis of Wilson-Worcester Method for Determining Median Effective Dose of Pertussis Vaccine. Margaret Pittman and J.E. Lieberman. -p. 15.

Abridged Table of Probits for Use in Graphic Solution of Dosage-Effect Curve. E.S. Weiss. -p. 22.

Symposium on Preservice and Inservice Preparation in Health of School Personnel: Role of Department of Education and Department of Health in Inservice Preparation of Classroom Teachers, School Administrators, School Nurses and School Physicians. L.E. Burney and B. H. Watt. -p. 25.

Preservice Preparation of Teachers and School Administrators. Elizabeth Kelley, Bernice Moss and Dorothy B. Nyswander. -p. 30.

Contribution of Medical School and School of Public Health. I.V. Hiscock. -p. 36.

Contribution of School of Nursing and Graduate Course in Public Health Nursing. Ruth Freeman. -p. 39.

*Frozen Precooked Foods. B.E. Proctor and A.W. Phillips. -p. 44.

*Dog, Fox and Cattle Rabies in New York State: Evaluation of Vaccination in Dogs. R.F. Korns and A. Zeissig. -p. 50.

Death, Defect and Disability in Prenatal Life: Epidemiologic Consideration. J.E. Gordon and T.H. Ingalls. -p. 66.

Community Health Services for Children in Eight Selected States. C.L. Williams Jr., J.P. Hubbard and Katherine Bain. -p. 75.

Frozen Precooked Foods.—Proctor and Phillips indicate that within the past decade a new and almost startling array of commercially prepared cooked food has made its appearance in frozen form. The most recent type, frozen precooked foods, was unknown before the war but now may be found in many markets. Frequently these frozen precooked foods have been prepared or manufactured by novices in the field of commercial food packing and processing. In the belief that some information could be obtained relating to the public health aspects of these new products, a microbiologic survey was made of all the commercially prepared frozen precooked foods available in New England markets. Several technics have been developed to aid in the identification of micro-organisms. One of these is a surface-plating technic used in conjunction with impression slides in order to identify large numbers of bacterial colonies more rapidly. Another development is a device to inoculate large numbers of bacteriologic culture tubes simultaneously. Those concerned with frozen precooked foods should set up microbiologic standards for each product and plant control procedures to insure that these standards are maintained. A number of the more experienced companies in this field did this before their products ever went on the market. Some producers have never considered this phase, know nothing about the microbiologic quality of their products and will continue to remain in ignorance unless standards are established for their guidance or control.

Rabies: Vaccination in Dogs.—Korns and Zeissig review the problem of rabies in the state of New York and direct attention to the introduction and spread of the disease in foxes and cattle with a concomitant sharp decline in canine rabies. Thus, during 1946 rabies was reported in 377 dogs, 308 foxes and 440 cows, while during the first nine months of 1947 the disease was reported in only 40 dogs but in 218 foxes and 173 cows. Evidence has been presented that indicates the value of prophylactic canine antirabies vaccination. In ten counties where 78 per cent of the enumerated dogs were vaccinated, the subsequent rabies attack rate in nonvaccinated dogs was 15.8 times the rate in vaccinated dogs observed during the same period and in the same area. Based on experience gained in sponsoring twenty-four county control programs, general recommendations are presented. The authors think that emphasis should be placed on the benefits to be derived from the program by the individual dog and his owner rather than on the legal necessity of complying with the regulations. In the state of New York rabies in cattle seems clearly to have been due to bites from rabid foxes. Control of the fox problem has been attempted by the creation, through trapping, of a zone of fox scarcity surrounding the infected area.

Archives of Surgery, Chicago

56:1-124 (Jan.) 1948

Decortication of Lung in Treatment of Tuberculous Empyema. C.R. Lam. -p. 1.

Anesthesia in Thoracic Surgery. N.E. Lenahan. p. 14.

Transgastric Removal of Large Solid Bodies Impacted in Lower Part of Esophagus. W.D. Gatch and W.F. Molt. -p. 21.

Surgical Treatment of Perforation of Esophagus. J.M. Dorsey. -p. 24.

*Resection of Esophagus for Persistent Stricture. C.B. Puestow and S.J. Chess. -p. 34.

Surgical Management of Irreducible Intussusception. C.W. McLaughlin, Jr. -p. 48.

Congenital Duodenal Obstruction (Intrinsic Obstruction). C.D. Benson and G.C. Penberthy. -p. 58.

Meckel's Diverticulum as Acute Surgical Emergency. C.H. Maguire. -p. 65.

Polyposis of Colon. C. McG. Gardner. -p. 75.

Obstruction Due to Volvulus of Colon. R.K. Gilchrist. -p. 79.

*Carcinoma of Rectum and Rectosigmoid. Statistical Analysis of 844 Cases. R. A. Thomas, P. S. Kline and L. Seed.--p. 92.

*One Hundred and Thirty-Seven Consecutive Combined Abdominoperineal Resections Without Mortality. T.E. Jones, J.R. Robinson and G.B. Meads. -p. 109.

Perforated Appendix in Children. I. Schulz. -p. 117.

Resection of Esophagus for Persistent Stricture. --Puestow and Chess point out that in stricture of the esophagus various types of procedures have been designed to reestablish the connection between the mouth and the stomach so that food can be chewed and swallowed. They have made a few modifications in the technic of Sweet. By removal of the seventh rib and division of the sixth and fifth ribs, they have found the entire stomach to be accessible and the gastroesophageal anastomosis to be considerably simplified. It has also been their policy to insert a Rawson-Abbott tube through the anastomosis. The proximal end is passed in a retrograde manner up through the esophageal stump to be retrieved by the anesthetist. The distal end is then passed into the stomach, with the extension for feeding well down into the duodenum. Since the vagus nerves are divided in this operation, the stomach becomes greatly distended if constant gastric suction is not used postoperatively. Distention may produce undue tension and necrosis at the suture line, and it also compresses the left lung. By constant aspiration and by the administration of duodenal feedings, the stomach can be kept deflated until healing takes place. At the same time the nutritional status of the patient can be maintained. The authors report 4 cases of intractable stricture of the esophagus with treatment in the described manner. The operation produced satisfactory results in 3 patients; 1 patient died. The authors say that although this procedure may carry with it a higher mortality than more conservative methods of therapy, the end result makes it justifiable as it restores the patient's normal eating habits and frequently overcomes abnormal psychic states. Intensive preoperative and postoperative care is essential for a successful outcome.

Carcinoma of Rectum and Rectosigmoid.--This statistical study by Thomas, Kline and Seed covers all patients with carcinoma of the rectum and rectosigmoid admitted to the Veterans Administration Hospital, Hines, Ill., from 1931 to 1946. There was a total of 844 male patients. The first symptom may be a severe attack of prolapsed thrombosed hemorrhoids. Loss of weight and frequent bowel movements were also frequent symptoms. A number of miscellaneous complaints appeared as the first symptom, such as rectal discharge, fistula in ano, rectal abscess, protrusion, dysuria, rectovesical fistula, weakness, backache and sciatica and the symptoms of metastasis to the liver, lung, groin, brain and jaw. With regard to operability and mortality, the patients have been divided into 2 groups. This division was made because of doubling of the resectability rate, which began in 1940 and was accompanied with a sharp reduction in mortality for all procedures. Several factors were responsible for this improvement. Most important were the better preoperative preparation, with special reference to the maintenance of the fluid, electrolyte and protein balance, the more liberal use of blood and plasma and the use of sulfonamide drugs and penicillin to control infections. During the past ten years, the majority of surgeons in this country have abandoned the two stage resection by colostomy and perineal excision for the one stage combined abdominoperineal resection. Comparing the survival rates after irradiation, after colostomy and after resection, the authors conclude that a carcinoma of the rectum or rectosigmoid should be resected.

Combined Abdominoperineal Resections Without Mortality.--Jones and his associates studied 137 combined abdominoperineal resections of the rectum performed in the Cleveland Clinic Hospital from 1941 to 1943 without operative mortality. They believe that their report will contribute to the growing weight of evidence in favor of the one stage combined abdominoperineal resection as contrasted with operations of lesser magnitude. A thorough abdominal palpation, inspection of the anus, digital examination of the rectum and sigmoidoscopic examination of the rectosigmoid and the lower part of the sigmoid colon made possible a correct clinical diagnosis in 100 per cent of the cases studied. All the lesions were within easy reach of the sigmoidoscope, and 70 per cent were within easy reach of the finger. Roentgenologic study as a diagnostic procedure in carcinoma of the rectum is of little value and may be misleading. For description of the technic of the operation the authors refer to an earlier report. The only change that has been made is the division of the bowel between Cope clamps instead of between Payr clamps and the use of stockinet caps instead of the rubber dam tied over the cut ends of the bowel. The most troublesome complication was infection of the urinary tract and retention of urine. The reasons for this complication seem to be (1) the disturbance of the innervation of the bladder by the removal of the rectum, (2) the use of retention catheter for the first twenty-four hours postoperatively to prevent overdistention of the bladder and (3) the fact that the posterior wall of the bladder has nothing left to push against when contracting because of the removal of the rectum. Most patients began voiding in adequate amounts nine days postoperatively. Residual urine to the amount of over 100 cc. was common for several weeks postoperatively.

Journal of Aviation Medicine, St. Paul

18:515-628 (Dec.) 1947

Effects of Anoxia on Retinal Vessels and Retinal Arterial Pressure. J. Duguet, P. Dumont and Jean-Pierre Bailliart.—p. 516.

Psychologic Requirements of Airplane Pilot. J. C. Flanagan.--p. 521.

Visual Standards and Flight Performance. M. S. Viteles.—p. 528.

Human Tolerance to Acceleration in Pilot Ejection. W. H. Ames, H. M. Sweeney and H. E. Savely.—p. 548.

Tolerance to Vertical Acceleration Required for Seat Ejection. D. T. Watts, E. S. Mendelson, H. N. Hunter and others.--p. 554.

•Appraisal of Intermittent Pressure Breathing as Method of Increasing Altitude Tolerance. M. Eckman, Beatrice Barach, C. Fox and others.—p. 565.

Studies on Asphyxia: II. Effects of Carbon Dioxide Inhalation on Anoxic Animal. J. H. Ivy, F. S. Grodins, H. F. Adler and F. E. Snapp.—p. 577.

Food Preferences on Combat Flights. D. B. Dill.—p. 590.

Distance Discrimination: V. Effect of Motion and Distance of Targets on Monocular and Binocular Distance Discrimination. M. J. Hirsch and F. W. Weymouth.—p. 594.

Pressure Breathing for Increasing Altitude Tolerance.--Studies described by Eckman and his collaborators revealed that the rise in oxygen saturation during intermittent pressure breathing with air at 16,000 and 17,000 feet (4876.8 and 5181.6 meters) was not accompanied by an increase in mental efficiency, as measured by the Hecht Visual Discrimination Test and the Arithmetical Problem Tests, in the majority of tested subjects. The arterial oxygen saturation in itself is not a dependable criterion of the efficiency of the individual but must be evaluated in the light of the carbon dioxide pressure and the pH of arterial blood. When equivalent mean pressures are compared, intermittent pressure breathing (as obtained by the pneumolator) is less comfortable than continuous pressure breathing. The high incidence of clinical symptoms of alkalosis with intermittent pressure breathing may be dangerous to the aviator. The appraisal of the data thus far reported points to the conclusion that continuous pressure breathing is more dependable and safer than intermittent pressure breathing.

Journal of Clin. Endocrinology, Springfield, Ill.

7:781-874 (Dec.) 1947

Spermatogenesis in a "Pan-Hypopituitary" Eunuchoid, as Result of Testosterone Therapy. L. W. Kinsell.—p. 781.

Endocrine Disorders Associated with Cushing's Syndrome and Virilism: Report of Unusual Case. A. C. Crooke.—p. 787.

Rapid Method for Determination of Total Urinary 17-Ketosteroids. I. J. Drekter, S. Pearson, E. Bartczak and T. H. McGavack.--p. 795.

•Specific Renal Functions in Hyperthyroidism and Myxedema: Effects of Treatment. A. C. Corcoran and I. H. Page.—p. 801.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Heart Journal, London

9:145-224 (July) 1947

Electrocardiographic Study of Typhoid Myocarditis. F. Mainzer. -p. 145.
Heart-Vector and Leads. Part II. H.C. Burger and J.B. Van Milaan. -p. 154.
Idiopathic Cardiac Hypertrophy. D.G. Vulliamy. -p. 161.
Heart in Scleroderma. T. East and S. Oram. -p. 167.
Testicular Teratoma with Extensive Intracardiac Metastases. R.W.E. Watts. -p. 175.
*Ergotamine and Apparent Coronary Insufficiency. G. Biörck. -p. 181
*Coarctation of Aorta. M. Campbell and S. Suzman. -p. 185.
Myocardial Tuberculosis with Paroxysmal Ventricular Tachycardia. R. Schnitzer. -p. 213.

Ergotamine and Apparent Coronary Insufficiency.--Biörck says that since 1942 hypoxemia tests have been done at his clinic as a routine in the clinical examination of patients complaining of symptoms of coronary insufficiency. It was established that the test not only discloses latent coronary insufficiency in many patients with suspected organic coronary heart disease but produced apparently pathologic electrocardiographic tracings in patients with symptoms of cardiac neurosis. The cardiographic observations in the hypoxemia test are usually ascribed to the induced anoxemia or inschemia of the myocardium. The degree of myocardial anoxemia is due to a number of factors, such as ventilation, arterial oxygen tension and arterial pH. Other investigators gained the impression that hormonal influences, reflex mechanisms and, possibly, intermediary tissue metabolism should be considered. This study deals with the influence of the sympathetic nervous system. In 10 patients with positive hypoxemia tests in which it was questioned whether the outcome of the test might not be due to functional factors rather than to coronary sclerosis or myocardial disease, a new hypoxemia test was perfromed after the injection of ergotamine 0.5 mg. In 9 patients the test after use of ergotamine was negative. This points to an effect of the *sympathetic* nervous system in such cases.

Coarctation of Aorta.--Campbell and Suzman point out that the collateral circulation in the chest wall may be the most striking feature of coarctation of the aorta. However, they think that coarctation will often pass unrecognized if a striking collateral circulation is expected to be self evident. It will be diagnosed if the femoral pulse of the patient is felt for and the blood pressure is taken in the legs in every instance of high blood pressure or basal systolic or diastolic murmurs, or undue pulsation in the neck, when this is without an obvious cause. The collateral circulation can be demonstrated in many patients in in whom it is not evident, or it can be made more obvious in others, if the patient is made to stoop forward with his arms hanging down vertically while his back is examined in a good light. This is because the greatly dilated subclavian artery is compressed between the clavicle and the first rib: bending forward opens up the costoclavicular space and thus releases this pressure on the subclavian artery. Any movement that increases the costoclavicular space may elicit this sign. A high pressure in the arms with a low pressure and a poor femoral pulse, or the demonstration of a collateral circulation are pathognomonic of coarctation of the aorta. They are even more important than notching of the ribs, not only because roentgenograms are not always available, but because these signs are present at an earlier age. The rise of blood pressure, the collateral circulation and the notching of the ribs develop as a rule in those between the ages of 6 and 16 years. The rise of blood pressure and the increase in the collateral *circulation* occur during the period of rapid growth, probably because the *stenosis* of the aorta does not increase in cross section (or increases relatively little) with the growth of the rest of the aorta; hence, the relative obstruction becomes *greater*. More than half the patients had little or no clinical or radiologic enlargement of the heart. Enlargement was more likely when there was an aortic diastolic *murmur* (6 of 15 cases), though even then it was sometimes slight. The average expectation of life of those with symptoms before adult life is probably no more than thirty years, so that cure by operation has something to offer. Where the diagnosis is made for the first time in adult life, and especially in those without symptoms, the outlook is relatively good.

Nordisk Medicin, Gothenburg

36:2367-2414 (Nov. 28) 1947. Partial Index

Recent Developments in Serodiagnosis of Syphilis: I. Standardization of Method and Technic with Cardiolipin Antigen. J.C. Hume and Thorsten Guthe. -p. 2367.
*After-Examination of 103 Cases of Cancer of Breast with Respect to Evaluation of Preoperative and Postoperative Roentgen Treatment. M. Andreassen. -p. 2373.
Influence of Diet on Urea Clearance. H. O. Bang and A. Nielsen. -p. 2376.
Triorthocresyl Phosphate Polyneuritis. Report on 75 Cases. O. W. v. Nandelstadh. -p. 2379.
Ethylene Glycol and Methanol Intoxication After Drinking Anti-Freeze Mixture. Five Cases. H. Jensen. -p. 2391.
Essential Hematuria. E. Karli-Jørgensen. -p. 2395.
Giant Cell Tumors with Unusual Localization. B. C. Brynjulfsen and G. Vestby. -p. 2397.
*Intestinal Atresia. B. C. Brynjulfsen. -p. 2401.
Luxation of Peroneus Tendons. R. Romanus. -p. 2407.
Value of Pandy's and Nonne s Tests for Protein in Cerebrospinal Fluid. R. Eeg-Olofsson. -p. 2410.

Preoperative and Postoperative Roentgen Treatment.--Radical operation was done in 123 cases of cancer of the breast with postoperative roentgen treatment and in 53 cases with preoperative roentgen treatment as well. Ninety-nine patients were examined at least five years after the operation; 4 had died from intercurrent disease. In 38 patients there was no recurrence, 61 had recurrence. Of the 29 patients without axillary metastases, 24 had no recurrence; of the 70 with axillary metastases, 14 were free from recurrence. Fifteen per cent of the recurrences appeared after three years. In 21 per cent of the recurrences the supraclavicular nodes were invaded. Extension of the operation to include extirpation of the supraclavicular nodes is advised. No better effect was seen *from* preoperative and postoperative roentgen treatment than from postoperative roentgen treatment alone.

Intestinal Atresia.--Brynjulfsen discusses atresia in the small and large intestine and reports 2 cases localized to the duodenum, both fatal; a case of multiple occurrence, also fatal, and a case of atresia of the small intestine with recovery after anastomosis, believed to be the ninth case of its kind with recovery to be published. To 1941, 20 cases of duodenal atresia with recovery had been published (Windfeld). Treatment is operative. With atresia in jejunum and ileum the method of choice is side to side anastomosis. The author cautions against jejunostomy and ileostomy. Three cases of atresia ani are described, 1 with recovery, 1 with incontinence and 1 with the formation of stricture.

Report of Case Showing Congenital Defects, Short Stature, Retarded Sexual Development and No Urinary Gonadotropins. G. B. Dorff, D. H. Appelman and A. Liveson.—p. 807.
Treatment of Thyrotoxicosis with Aminothiazole--Results in 23 Cases. Jeannette S. McConnell, J. W. Frost, R. W. Wilbur and E. Rose.—p. 812.
Iodine Lack Theory and Endemic Goiter. H. Ucko.—p. 820.

Renal Functions in Hyperthyroidism and Myxedema.--In studies on the specific renal functions in 2 patients with hyperthyroidism, 1 of whom was treated by subtotal thyroidectomy and the other with thiouracil, Corcoran and Page found that this condition is not associated with a significant renal vasodilation or with an increase in tubular secretory capacity for iodopyracet injection ("diodrast" N.N.R.) proportionate to the elevation of the basal metabolic rate. Before treatment, 2 patients with myxedema treated had reductions of renal blood flow, glomerular filtration and tubular secretory capacity. Treatment with desiccated thyroid resulted in restoration of these functions toward normal. The changes thus induced in renal blood flow and glomerular filtration rate reflect a decrease in afferent vascular resistance. The depression of tubular secretory capacity in myxedema is excessive in relation to the reduction of basal metabolic rate in this condition and to the changes observed in this function during hyperthyroidism. It is suggested that the renal functional depression present in myxedema is in part a reflection of depression of anterior hypophysial function rather than a direct renal lack of thyroidal hormone.

Kentucky Medical Journal, Bowling Green

46:1-34 (Jan.) 1948

Hematuria. H. E. Martin. -p. 4.
Conversion Hysteria. J. H. Rompf. -p. 8.
Knock Knee and Bowleg. E. E. Myers. -p. 14.
Rocky Mountain Spotted Fever and Related Rickettsial Diseases. R. L. Cash. -p. 19.
Congenital Hypertrophic Pyloric Stenosis. E. C. Strode. -p. 24.

46:35-72 (Feb.) 1948

Uterine Bleeding with View Toward Conservative Pelvic Surgery. A. J. Vesper. -p. 38.
Vitamins--Uses and Abuses. L. T. Minish Jr. -p. 45.
Medical Problems in Community Hospital. W. O'Nan.-p. 49.
Acute Cardiovascular Emergencies. C. B. Billington. -p. 54.
Symposium on Non-Surgical Treatment of Hyperthyroidism
Medical Treatment of Hyperthyroidism with Derivatives of Thiourea. J. R. Hendon. -p. 57.
Roentgen Therapy in Hyperthyroidism. W. C. Martin. -p. 62.
Final Report of Committee for Study of Infant Mortality in Louisville. Margaret Limper. -p. 64.
The Overdue Obstetrical Patient. T. B. Pugh. -p. 66.

New England Journal of Medicine, Boston

238:107-136 (Jan. 22) 1948

Medical and Hospital Care of Veterans in Massachusetts. W. Adams. -p. 107.
Surgical Aspects of Bronchiectasis. J.W. Strieder. -p. 109.
Mechanisms Underlying Pulmonary and Cardiac Complications of Electrically Induced Convulsions. M.D. Altschule and K.J. Tillotson. -p. 113.
Angiocardiography: Its Use in Diagnosis of Patent Ductus Arteriosus. R.A. Furman. -p. 116.
Acute Hemolytic Anemia from Quinine Used as Abortifacient. A.T. Licciardello and J.B. Stanbury. -p. 120.
Syphilis. G.M. Crawford. -p. 121.
Subacute Bacterial Endocarditis of Aortic Valve. Subacute Glomerulonephritis. -p. 126.
Normal Uterus. -p. 130.

238:137-170 (Jan. 29) 1948

*Control of Acute Respiratory Infections in Industry. G.F. Wilkins. -p. 137.
*Course of Rheumatoid Arthritis in Patients Receiving Simple Medical and Orthopedic Measures. C.L. Short and W. Bauer. -p. 142.
Anesthesia in Surgical Treatment of Bronchiectasis. L.H. Mousel. -p. 148.
Localized Coccidioidal Osteomyelitis. T.A. Lamphier. -p. 150.
Syphilis. G.M. Crawford. -p. 152.
Coronary Arteriosclerosis with Occlusion. -p. 160.
Acute Appendicitis with Perforation. -p. 163.

Control of Respiratory Infections in Industry.—Wilkins thinks that the time-honored advice given to a patient with an acute respiratory infection to "go to bed for twenty-four or forty-eight hours" is undoubtedly of merit. Although in the absence of fever it is questionable whether such a procedure shortens the duration of the infection, it serves to isolate the patient and thus to prevent spread by contact. The observance of general hygienic measures, such as the use of disposable tissues for coughing, sneezing and nose blowing, and cleanliness of the hands, requires no comment. Education may be accomplished by the use of posters, pamphlets and articles in company organs in which personal hygiene, proper clothing, nutrition, exercise and rest are stressed. To date no scientific evidence has been presented that additional vitamins have any immunologic value in the presence of a diet that supplies the minimal daily requirements of these accessory food factors. Experience with cold vaccines has convinced the author that the method is of no value as a preventive measure against colds. The Subcommittee for the Evaluation of Methods to Control Airborne Infections concluded that the general use of ultraviolet irradiation or disinfectant vapors in schools, barracks and in industrial environments is not justified at the present time. In a recent outbreak of influenza, definitely identified as due to virus A, vaccination of 10,000 university students was accomplished. Satisfactory serum antibody levels against virus A were obtained, but no protection was afforded.

Rheumatoid Arthritis.—Short and Bauer review observations on 250 unselected patients with rheumatoid arthritis who received simple medical and orthopedic measures and who have been under observation for an average period of ten years. Over 50 per cent evidenced definite improvement when last seen, and 15 per cent were considered in remission. The authors hope that additional series will be collected and published for comparison with this one and with results attained by special forms of therapy. No selection should be used and, if possible, the patients should represent consecutive admissions. In this way the series will not be limited to certain types or stages of the disease. The follow-up period should be spread over years rather than months to allow for the usual relapses and remissions. When the time has come for the evaluation of results, certain factors of prognostic implication should be taken into consideration. These include the age and sex of patients, the duration of the disease, the type and extent of involvement and the activity and severity of the process. It is desirable that a uniform scheme for the evaluation of therapeutic results eventually be adopted. The results in the present series indicate that about 50 per cent of patients will ultimately improve. This percentage may well change in the course of time. The percentage obtained at present is below "the inevitable 75 per cent improvement" usually mentioned in estimates on the prognosis in rheumatoid arthritis.

Book Notices

Rhinoplasty and Restoration of Facial Contour with Special Reference to Trauma. By Jacques W. Maliniac, M.D., Clinical Professor, Plastic Reparative Surgery, New York Polyclinic Medical School and Hospital, New York. Cloth. Price, $7.50. Pp. 327, with 211 illustrations. F. A. Davis Company, 1914-16 Cherry St., Philadelphia 3, 1947

In the preface the author states "I have not sought to restate facts which can be found in any standard textbook but rather to furnish practical data in which much of the current literature is deficient." In chapter X he states "This chapter will stress those points which in the author's opinion need clarification and improvement." Later in the same chapter he states "As throughout this book, details of accepted procedures which have been repeatedly described elsewhere are omitted here. Emphasis is laid on controversial points and methods which personal experience has found of particular value."

Thus the reader who is seeking a textbook giving details on the performance of routine rhinoplastics will be disappointed. The emphasis in this book is on trauma, both in its acute stage and in its late effects, the minimization of deformity and the correction of that which has already developed. In the chapter on anatomy and development the anatomy of the bony framework and external nose is presented, with emphasis on the relation of anatomy to deformity and external contour. The necessity for a thorough and accurate diagnosis prior to the treatment of acute injury and the technic of examination and evaluation of this injury are stressed. Nasal fractures with associated injury to the soft tissue and cartilaginous displacement are discussed in fullest detail, as is the treatment of each displacement or element in the deformity.

A chapter on skin grafts, flaps and supporting grafts lists the various types of grafts to be thought of and utilized in making a repair. It does not describe the detailed technic for using these grafts or performing the operations but does give good advice in helping the reader to select the procedure of choice.

The relationship of septal malformation to external deformity is well presented. The discussion of nasal asymmetries, associated oversized deformities and traumatic nasal loss again does not give detailed technics but rather lists the possibilities for repair and gives the author's preferred technic. This portion of the book is written with far less emphasis than is the section on treatment of acute trauma.

There are a number of inaccuracies in the recommendations for the use of sulfonamide drugs, penicillin and tetanus toxoid. The reader should not let such minor discrepancies prejudice him against the valuable portions of the book.

Kurzes Handbuch der Ohrenheilkunde. Von Professor Dr. Hermann Marx. Second edition. Boards. Price, 48.50 marks. Pp. 888, with 499 illustrations. Gustav Fischer, Villenz 2, Jena, Deutschland, Russ. Zone, 1947.

This short handbook is in its second edition and is wholly devoted to the diseases of the ear. It is well printed on paper of fine quality with many of its illustrations in color. The author considers his subject in great detail; his statements are authoritative. Considering Germany's state during and since the last war, this text is a tribute to the courage and zeal of the author. Of course, and with all this in mind, there are deficiencies. These relate to the inability of German workers to keep abreast of recent advances, especially in American medicine. For this reason the treatment of a number of subjects is necessarily scanty and behind the times. For instance, our notions about and our treatment of aural vertigo of the Ménière's syndrome type, as well as the tremendous impact of antibiotic therapy on the surgery and treatment of suppurations of the temporal bone and their complications, are not reflected in these pages. Penicillin is not even mentioned in the index. The discussion of fenestration technic in otosclerosis is heavily weighted in favor of European investigators and thus overlooks the high degree of skill and success with which these procedures are carried out in this country by Lempert and others whom he has influenced. Nevertheless the sober student of otology ought to possess and prize this work as a fine and almost indispensable guide to the background of an art and practice which has changed remarkably in the last few years.

Hypnotherapy: A Survey of the Literature. By Margaret Brenman Ph.D., Director of the Division of Psychology, the Menninger Foundation, Topeka, Kan. and Merton M. Gill, M.D., Associate Psychiatrist, Assistant Director, Department of Research, the Menninger Foundation. With Appended Case Reports and an Experimental Study. The Menninger Foundation Monograph Series No. 5. Cloth. Price, $4.50. Pp. 276. International Universities Press, 227 W. 13th St., New York 11, 1947.

One half century after therapeutic hypnosis was discarded by Freud, a revival of interest has occurred. The authors of this interesting and stimulating book review the literature and bring up to date the theories, indications and applicability of hypnotic procedures in psychotherapy. The volume is divided into three sections. The first portion is designed to clarify present knowledge by a survey of the literature. The second and most interesting section presents four case studies, previously published in various journals, which clearly demonstrate the methods of investigation. At the beginning of therapy free association while under hypnosis was utilized. Then the authors worked with spontaneous dreams, dreams induced by suggestion when resistance appeared or when a clearer statement of the material was desired. In addition to free association and dreams the therapists attempted to force the recall of forgotten memories. Toward the end of therapy technics under hypnosis to induce regression played a significant role. They explored specific trends by reviving episodes which the history indicated were closest to the repressed content. The patient was regressed to this episode and hitherto repressed material was explored. Repression seemed to yield most readily to hypnosis. Other defense mechanisms could also be analyzed under hypnosis as in the waking state. To counteract anxiety, which at times made its appearance during the release of repressed material, direct supportive suggestion was used. The third section deals with the possible uses of hypnosis in psychologic investigation. This book is a valuable contribution to the therapeutic technic in psychiatry. Hypnosis is not in itself therapeutic. The skill of the therapists in the utilization of the transference and dealing with the ventilated material are of paramount significance.

The Foot and Ankle: Their Injuries, Diseases, Deformities and Disabilities. By Philip Lewin, M.D., F.A.C.S., Associate Professor of Bone and Joint Surgery, and Acting Head of Department, Northwestern University Medical School, Chicago. Line Drawings by Harold Laufman, M.D., F.A.C.S., Associate in Surgery, Northwestern University Medical School. Third edition. Cloth. Price, $11. Pp. 847, with 389 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1947.

In this third edition the author has added measurably to his already highly comprehensive work. There is a new section of considerable length on the military aspect of the foot based on such facts and experiences as were collected during the last war. While the traumatic aspect of foot ailments is given extended consideration, it does not curtail a thorough and comprehensive treatment of other conditions such as the static and inflammatory ailments. Furthermore, subjects that are so easily overlooked in textbooks because they are presumably insignificant, such as infections and abnormalities of the toenail, foot hygiene, chilblain and frostbite, are thoroughly discussed and are a welcome addition to the surgeon who may be looking for real advice on the minor ailments of the foot and may find the usual textbook disappointing. The book is written with the same thoroughness that characterized the earlier editions.

Disfunciones motoras del estomago. Por el Doctor E. Arias Vallejo. Prólogo del Profesor E. Oliver Pascual. Paper. Price, 35 pesetas. Pp. 155, with 66 illustrations. Revista española de las enfermedades del aparato digestivo y de la nutricion, Cava Baja 11, Madrid, 1947.

Arias Vallejo has made a particular study of those cases in which the stomach fails to empty properly, and he has covered the literature fairly extensively. Each chapter has a bibliography appended. The first chapter deals with the physiology of gastric emptying. Following this there are chapters on stenosis near the pylorus, duodenal stenoses below the papilla, spasm of the pylorus, weakness of the gastric walls, gastric ptosis, the slow emptying of the stomach in some diseases of the small intestine; acute dilatation of the stomach, and the emptying of the stomach after operations on this organ. Few persons realize that in some cases of diarrhea the stomach empties slowly, perhaps because of irritation of the small bowel. This is a creditable piece of work and all Spanish-speaking physicians can find a good deal of value in the volume.

Industrial Health Engineering. By Allen D. Brandt, B.S., M.S., Sc.D., Industrial Hygiene Engineer, Bethlehem Steel Co., Bethlehem, Penn. Cloth. Price, $6. Pp. 395, with 167 illustrations. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W. C. 2, 1947.

This book is described as the first complete handbook on industrial atmospheric contaminants and their control. Presumably, this statement refers to literature available to engineers. The material is especially designed for that profession and will appeal only to those physicians who have qualified as industrial hygienists or who are called on to install, administer or supervise measures for the control of occupational hazards.

Plague: Laennec (1782-1826) Inventor of the Stethescope and Father of Modern Medicine. By Arthur N. Foxe, M.D. Second edition. Cloth. Price, $2.50. Pp. 122, with 2 portraits. The Hobson Book Press, 52 Vanderbilt Ave., New York 17, 1947.

According to the author's brief preface, this volume is the second edition of the book whose first edition (1930) was limited to "six copies." It seems questionable whether everyone would agree with the author that his medical hero is the "father of modern medicine," as stated in the title. Whereas the best biographic history should be written from the point of view of the times in which the person lived, one can certainly affirm that this volume is so written; for the book is replete with philosophic references to the turbulence in France during the student days and professional activities of Rene Laennec. To cite an example: "And his (Carrier's) people had objected violently that children of the nobles would eat tarts that rightfully were only for their own. Later when men tired of killing, looked about and could see only error where before they had only seen right, it was on Carrier that the brutal acts of everyone were to be heaped" (p. 22). More in line with the subject of his biography is the evaluation of the teachers of Laennec, where the author writes: "This man had charm and his words flowed smoothly, but to what depth? This man shouted his students to submission but his shouting concealed a narrowness and weakness of outlook. This man spoke calmly, openly, confidently, but no igniting demon even slept within him" (p. 71). Of this sort of material there seems to be a surfeit. Laennec's brief life (he died at 45), with its psychic ups and downs, runs as a thin thread through a heavy matrix of philosophic considerations, so much so that one finds as much biographic material on page 151 of Camac's "Epoch-making Contributions" as in the first seventy-one pages of the present book, even though one probably will find nowhere else so impressive an account of the poverty of Laennec and his alternate periods of happiness and depressions. The final months and days of Laennec succumbing to pulmonary tuberculosis are particularly well and graphically portrayed by Dr. Foxe. In spite of too much irrelevant material the book makes interesting reading of this great discoverer and can be easily read in an afternoon.

Clinical Neuro-Ophthalmology. By Frank B. Walsh, M.D., F.R.C.S., Associate Professor of Ophthalmology, Johns Hopkins University, Baltimore. Cloth. Price, $15. Pp. 1532, with 384 illustrations. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1947.

English-speaking ophthalmologists and neurologists have been waiting a long time for this book. Previous texts had the shortcomings of being either too brief and incomplete or in a foreign language, particularly German. If there is anything missing, pertinent to the title of this excellent work, the reviewer has been unable to uncover it. It is a veritable encyclopedia of neuro-ophthalmology in one volume and represents a wealth of painstaking and accurate work on the anatomy, physiology, pathology, signs, symptoms and treatment of all neurologic disorders affecting the eyes. The author has had the privilege of close association for many years with various departments, notably neurologic and neurosurgical, of the Johns Hopkins and Baltimore City hospitals. He has devoted ten of these years to the production of this work and has arranged his voluminous and important material with skill and grace. His style is austere yet pleasing, and difficult phases are treated with lucidity. The index is superb. Every physician will discover the volume to be of much value and significance in his daily work.

Handbook on Fractures. By Duncan Eve Jr., M.D., F.A.C.S., Surgeon in Chief, Nashville, Chattanooga and St. Louis Railroad, Nashville, Tenn. In collaboration with Trimble Sharber, A.B., M.D., Attending Surgeon, St. Thomas Hospital, Nashville, Tenn. Cloth. Price, $5. Pp. 263, with 129 illustrations. C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1947.

This small book covers in a succinct and brief way the general management of fractures. In spite of its brevity it includes a good many detailed descriptions that are important if one wishes to treat fractures satisfactorily. The descriptions are short and to the point. If there is criticism to be made, it might be that too much emphasis is laid on roentgenologic examination and not enough on tenderness. There are a great many fractures without displacement which are not revealed on early roentgenologic examination. In fractures of the femur there is one point that might well have been emphasized; that is, the preservation of the crown of the femur. Most of the illustrations are good, but some of the roentgenograms seem a bit foggy. There is one point of view which some authorities might disagree on; a fracture of the cuboid bone does not need a plaster cast. A felt pad 1/2 inch (1.27 cm.) thick placed under the sole from the heads of the metatarsals to the os calcis will relieve pressure and make it possible for the patient to walk about while the fracture is uniting. This is a valuable book for the medical student and for those practitioners who encounter fractures but do not have time to read about them in great detail. On the whole, the emphasis is laid on conservative methods rather than on gadgets. This is a healthy attitude at this time when so many surgeons are using metal in treating fractures. Those interested in the treatment of fractures will find Dr. Eve's book a useful addition to their libraries.

Sir W. Arbuthnot Lane, Bart., C.B., M.S., F.R.C.S.: His Life and Work. By W. E. Tanner, M.S., F.R.C.S. Cloth. Price, $4.50. Pp. 192, with portrait. The Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1946.

Sir W. Arbuthnot Lane will probably be remembered for Lane's kink, which was a mistake, and for his subsequent embarkation into notions regarding diet and health, which were probably even greater mistakes. He should be remembered as a great surgeon who in his prime was recognized throughout the world. He should be remembered for his development of the metallic plates and implements which continue to be used in surgery. His biographer believes that some of the statements made by Lane in his later years which were so greatly attacked were made with his tongue in his cheek simply to startle the medical profession. The biography is worthy of note as a study of one of the most interesting characters in modern medicine.

The Christchurch Hospital Medical Manual. Edited by C. T. Hand Newton, D.S.O., M.D., F.R.A.C.P. Second edition. Cloth. Price, 15s. Pp. 109, with 1 illustration. N. M. Peryer Limited, 145-147 Worcester St., Christchurch, C. 1, New Zealand 1947.

This manual, prepared for the guidance of the visiting and house staffs, nurses and dietitians, concentrates mainly on the use of roentgenologic and laboratory services as aids to clinical diagnosis and therapy. Articles have also been included on fluid balance, hypersensitivity to serum and the use of blood and plasma in clinical practice. Approximately half of the book is devoted to general and special diets which can be employed routinely or in modified form to meet individual needs. The book has become a convenient and informative source of reference for the medical and hospital personnel.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CARBOHYDRATE ALLERGY

To the Editor:—A woman aged 51 complains that she is "allergic to sugar or carbohydrates and has been for the past eighteen or twenty years." When she eats sugar there develop edema of the ankles, swelling of the abdomen and puffiness of the face and hands. After the ingestion of carbohydrates she has nocturia seven or eight times. Physical examination was negative except for a hypotension of 90 systolic and 60 diastolic, a bradycardia of around 48 and hypoactive reflexes. An electrocardiogram and a roentgenogram of the gallbladder revealed normal conditions. On roentgen examination the chest was normal except for a few adhesions of the left costophrenic angle. The upper part of the gastrointestinal tract was normal; study of the lower part of the gastrointestinal tract revealed a congenital megacolon (or Hirschsprung's disease). Urinalysis was negative; blood sugar and nonprotein nitrogen were within normal limits. Hippuric acid test of liver function was within normal limits. Gastric analysis disclosed a tendency towards achlorhydria. The blood count was within normal limits and the Wassermann test was negative. The basal metabolic rate was minus 23 per cent. Skin tests were positive for cane sugar, beet sugar, lactose, dextrose and a few other miscellaneous foods. She has learned through trial and error what to eliminate from her diet. Thyroid "depancol" (each enteric-coated tablet contains 0.022 Gm. dihydrocholic acid, 0.292 Gm. pancreatin and 0.097 Gm. bile salts), vitamins, amino acids, "pyribenzamine," prostigmine and hydrochloric acid have been used in treatment. Would a sympathectomy cure her? She lost about 12 pounds (5.4 Kg.) and now weighs only 110 pounds (49.9 Kg.). Her diet is becoming more limited and is restricted to proteins and fats only.

M.D., California.

ANSWER.—The solution is not obvious. The patient's statement that she is "allergic to sugar or carbohydrates" is probably incorrect. Allergy to sugars is rare, if it occurs at all The positive reactions for extracts of cane sugar, beet sugar, lactose and dextrose should be proved, because in the hands of almost all allergists skin tests for these carbohydrates are uniformly negative whether carried out by the scratch or the intradermal method. Mention of allergy to sugars is not found in standard textbooks on allergy by Coca (Coca, A. F.; Walzer, M., and Thommen, A. A.: Asthma and Hay Fever, Springfield, Ill., Charles C Thomas, 1931), Tuft (Tuft, L.: Clinical Allergy, Philadelphia, W. B. Saunders Company, 1937) or Unger (Unger, L.: Bronchial Asthma, Springfield, Ill., Charles C Thomas, 1945). Vaughan (Vaughan, W. T.: Practice of Allergy, St. Louis, C. V. Mosby Company, 1939, p. 354) has stated that "the possibility of allergy to the refined sugar is decidedly questionable. The writer has seen a few patients who have been convinced in their own minds that one or another kind of sugar has been responsible for allergic manifestations. The possibility exists, of course, that some other food article ingested with the sugar may have been the responsible excitant," e. g., chocolate, almond, cocoanut or peanut. Vaughan has said that skin tests are negative for sugar, but he has quoted cases of allergy to sugar as reported by Rowe and Duke.

Urbach and Gottlieb (Urbach, E., and Gottlieb, P. M. Allergy, Grune & Stratton, New York, 1946, pp. 313-314) stated that allergy to carbohydrates is rare and probably based on a haptene mechanism, while intolerance to carbohydrates is a metabolic disorder generally considered to be a forerunner of diabetes. In either case administration of sugar leads to generalized or cutaneous symptoms which disappear when carbohydrates are avoided. To differentiate, sugar is again given when the patient is symptom free, but this time after an adequate injection of insulin. If symptoms do not occur the case is due to carbohydrate intolerance (latent diabetes); if symptoms occur the diagnosis is hypersensitivity. Urbach and Gottlieb have reported 2 cases in which eczematoid, pruritic dermatitis was aggravated by carbohydrates and relieved when carbohydrates were removed from the diet of the patients.

Avoidance of dietary carbohydrates may not be harmful, as shown by the polar explorer, V. Stefansson, who was in excellent condition after a diet of meat and its fats through a twelve month period.

The hypothyroidism may be important here; continued administration of thyroid seems definitely indicated. Other endocrine therapy, e. g. estrogenic, may also be of service. Sympathectomy is not indicated. Dextrose tolerance tests, examination of the eye grounds and a neurologic search for possible tumor of the brain are in order. To test the patient's complaints, dextrose could be given disguised in capsules; if symptoms did not develop, dextrose could then be tried subcutaneously and then intravenously. The possibility of allergy as a factor would be strengthened by the presence of blood eosinophilia and by the presence of some allergic symptoms in the family or a recognized allergic condition in the patient.

CHOLINE

To the Editor:—What is the information on use of choline? Are there harmful results from its use in patients with high blood cholesterol levels? What are other indications and dosage for use of choline?

M.D., Oklahoma.

ANSWER.—Choline, which is commercially available as choline dihydrogen citrate, has been shown to have a lipotropic action. The effect on blood cholesterol levels is negligible. This substance cannot be relied on to reduce a high blood cholesterol to a normal or near normal level or to prevent hypercholesterolemia.

Choline dihydrogen citrate has been accepted for inclusion in "New and Nonofficial Remedies" for the treatment of hepatic disease associated with fatty infiltration. Although animal experiments indicate a favorable action of choline, clinical studies have been inconclusive. Furthermore, it has yet to be conclusively demonstrated that choline therapy is superior to an adequate diet in the treatment of hepatic disease.

Choline should always be given orally, and by that route it is practically nontoxic. It should be noted that most foodstuffs contain substantial quantities of choline. Parenteral administration of choline is dangerous and may lead to circulatory collapse.

The recommended dose of choline dihydrogen citrate is 2 to 3 Gm. orally in divided doses.

ALUM PRECIPITATED DIPHTHERIA VACCINE

To the Editor:—What is the information on abscess formation from alum precipitated diphtheria vaccine? I have had 2 cases of abscess formation following use of the vaccine in patients aged 36 and aged 2 years. What is the treatment?

George U. Ivers, M.D., Fargo, N. D.

ANSWER.—A great deal of improvement has been made in the preparation of diphtheria toxoid fluid and diphtheria toxoid, alum precipitated, during the past year. An alum precipitated toxoid in which the alum content is claimed to be reduced by 75 per cent is now available. Toxoids prepared in this manner are said to be practically free from reaction in both children and adults. The dosage required is only about one half the volume customarily used with the standard toxoids. Therefore local reactions caused by the alum are reduced to a minimum.

When an abscess forms after administration of diphtheria toxoid, alum precipitated, absence of redness of the skin indicates that the abscess is probably sterile. Therefore, if it is not interfered with its absorption may be expected. If the abscess is the result of infection, treatment is the same as for any other superficial abscess.

SCARLET FEVER IMMUNIZATION

To the Editor:—How effective is scarlet fever streptococcus toxin (as Wyeth's) in preventing scarlet fever? Does it prevent the complications of scarlet fever? Are there any disadvantages or contraindications against active immunization against scarlet fever?

M.D., New Mexico.

ANSWER.—Scarlet fever streptococcus toxin is of undoubted value for the prevention of the classic form of scarlet fever. Scarlet fever toxin when given in proper dosage will establish immunization against the rash of scarlet fever but does not immunize the recipient against infection with scarlet fever streptococci. Although scarlet fever streptococcus toxin when given for active immunization may prevent toxic manifestations of the disease, it does not eliminate the possibility of suppurative complications. Occasionally there is some unpleasant reaction following the administration of scarlet fever toxin when immunization procedures are carried out.

If a patient is immunized against the toxic manifestations of scarlet fever, including the rash, the necessity for isolation of such a patient when he has an acute case of pharyngitis due to scarlet fever streptococci is not appreciated. Therefore it might be assumed that persons inoculated with scarlet fever toxin could become a hazard to a community: although they harbored scarlet fever streptococci they would have no rash and consequently would not be isolated. Therefore they might transmit clinical scarlet fever to nonimmunized persons.

BLOOD IN NEWBORN

To the Editor:—Discuss and give references concerning the belief that many ounces of blood will be gained by the newborn child if the cord is not cut till its pulsations stop or by milking the blood into the child by stripping the cord toward the child.

M.D., New York.

Answer.—The studies of Q. B. DeMarsh, H. L. Alt and W. F. Windle (The Journal, June 7, 1941, page 2568) have definitely shown that deprivation of the infant of the portion of its blood that is in the placenta by clamping the umbilical cord immediately after birth influences the red corpuscle count and hemoglobin content of the blood during the first week of life. Those infants whose cords were not clamped until the placenta had separated from the uterus had on the average 0.56 million more red blood corpuscles per cubic millimeter and 2.6 Gm. more hemoglobin per hundred cubic centimeters during the first week of life than those whose cords were clamped immediately.

Blood drawn from the infant's navel twenty to seventy-five minutes after birth had significantly higher red corpuscle and hemoglobin values than blood drawn from the umbilical cord at birth. Possibly the spleen plays a part in bringing on this polycythemia of birth. Higher reticulocyte counts in infants whose cords were clamped immediately suggested a greater demand for blood in this group than in the group whose cords were not clamped until placental separation. Early clamping of the umbilical cord is equivalent to submitting the child to a hemorrhage at birth.

The editors of the "1941 Year Book of Obstetrics and Gynecology" made the following comment concerning this article: "The same authors have also proved that such deprivation of placental blood may lead to an iron deficiency which may persist during the first year of life (Am. J. Dis. Child. **62**:320 [Aug.] 1941). For this reason some operators force the placental blood into the baby's circulation by stripping the cord. This can be dangerous if done roughly—forcing blood into an already full circulatory system causing heart block and rupture of fine vessels. In earlier times we ascribed melena neonatorum to this practice. The baby will get the blood it is entitled to if you wait a few minutes before clamping or tying the cord."

ALLERGIC RHINITIS

To the Editor:—In August 1946 my daughter, aged 16 years, contracted allergic rhinitis, apparently following a severe head cold.

She had intravenous histamine therapy without result. Diphenylhydramine hydrochloride ("benadryl") gives her temporary relief but makes her drowsy. Packing the nostrils with mild silver protein ("argyrol") 10 per cent seems to help a little. She sneezes a great deal night and morning. What other treatment is suggested?

De Vere Ritchie, M.D., Orlando, Fla.

Answer.—The history does not contain sufficient data for a diagnosis. If diagnosis is definitely allergic rhinitis the next step before treatment (other than palliative) is to make an etiologic diagnosis. Home environmental substances to which the patient may have become allergic, or the seasonal and perennial allergens in the air (pollens, molds) may be causes of this condition. Food sensitization may aggravate inhalant causes. Have a competent specialist in allergy determine the causes of the condition. Treatment will then depend on the offending causes.

Use of mild protein silver packs in allergy is certainly contraindicated. It will lead to chemical irritation of an already irritable, hypersensitive mucosa. Use of histamine in the treatment of nasal allergy is considered by many allergists to be of questionable value.

FALSE POSITIVE FREI TEST

To the Editor:—What is the information on false positive Frei tests with all antigen? Please furnish recent references on this subject.

M.D., Maine.

Answer.—A false positive Frei test may occur with antigen of human bubo origin, chick embryo origin or mouse brain origin. When employing antigen of chick embryo or mouse brain origin controls should be run with uninfected materials. False positive reactions are sometimes obtained during the acute phase of one or another of the other venereal diseases, i. e., syphilis and chancroid, and may occur in patients who are highly allergic. In the presence of a suspected false positive reaction a complement fixation test will help to rule out the disease.

Reference:

Greenb[illegible] Management of Chancroid, Granuloma Inguinale and [illegible] in General Practice, Ven. Dis. Infor. [illegible]

POSTCOITAL HEADACHE

To the Editor:—A Negro woman aged 25, married eighteen months, has been suffering for the past sixteen months with moderate to severe postcoital backache, in the right lower quadrant and severe headache in the right frontotemporal region. Headache also occurs occasionally on the left side.

Two months after marriage, she had symptoms of nausea, epigastric pain and flatulence after meals. Examination revealed a six weeks pregnant uterus. The uterus showed second degree retroversion, which appeared to be congenital but had given the patient no previous trouble. The flatulency became worse, and the abdomen was distended beyond normal proportions. Two months later the patient had an attack of severe gastrointestinal distress with vomiting and diarrhea, at which time she apparently lost the fetus. One month later the uterus was empty. Continuous headache was relieved temporarily but soon returned. She also complained of hot flushes, which are becoming less frequent.

The patient was examined by a specialist in February 1946. He told her that her condition was due only to change in climate and to adjustment of her body to married life. He prescribed diethylstilbesterol and thyroid, which gave her relief for about three months, after which the headache, backache and gastrointestinal distress returned. The patient lived in a dry climate before marriage but now lives in a moist climate; the color of her skin becomes lighter and menstruation becomes prolonged whenever she returns to the dry climate. In a recent Aschheim-Zondek test her urine was toxic and killed an animal.

I believe the cause is partly climate and partly psychic; however, I have discontinued treatment pending consultation. Please discuss this case and suggest treatment.

M.D., Massachusetts.

Answer.—The symptoms do not appear to be caused by any gynecologic abnormality, and apparently none was found by the specialist. This patient should have a complete investigation of the gastrointestinal tract wi[illegible] No reason for giving diethylstilbestrol [illegible] uld not be administered unless basal [illegible] the need for it.

MALIGNANT MELANOMA

To the Editor:—Some months ago an apparently otherwise healthy person came to me with a nevus on the left temple which was breaking down. I destroyed it with the electric needle under procaine anesthesia including the surrounding area to the extent of about a 5 cent piece. The wound healed satisfactorily and the patient had no further symptoms for three or four months when the parotid gland became greatly enlarged and quite dense. Diagnosis of malignant melanoma with metastases to the lungs was made. The roentgenologist studied films of the lungs made prior to my destruction of the growth on the temple and concluded that they showed evidence of metastasis. Hard lumps are now scattered anteriorly and posteriorly under the skin of the abdomen and chest. The man works regularly and says that he feels well.

Is there a presumption that destruction of the nevus was incomplete and was responsible for the subsequent rapid development of the parotid tumor and its widespread metastasis? Should surgical measures have been avoided at that time? The roentgenologist believes that metastasis was present in the lungs prior to destruction of the nevus, but he admits that it is only an opinion and not a certainty.

M.D., Pennsylvania.

Answer.—There is a strong suspicion that inadequate treatment of a nevus can lead to disseminated melanoma. The evidence in this case seems to indicate that the dissemination was not related to the treatment.

ENDOMETRIOSIS

To the Editor:—In patients with endometriosis who are approaching the menopause, is there objection to using estrone for menopausal symptoms during and after menopause? This patient has two or three years to go before menopause is established. She has chocolate cysts and at present has no symptoms.

M. Karasek, M.D., Shidler, Okla.

Answer.—To clarify terms and definitions, menopause is that period when menstruation normally ceases and is established with the last period. The term menopause, or menopausal syndrome, is more loosely applied to that period from the terminal menstrual period until hot flushes and vasomotor symptoms cease, usually varying from six months to three years. Women with enough ovarian function to menstruate will not have menopausal symptoms, and some women apparently produce enough estrogen to relieve menopausal symptoms past the time of the last period.

Endometriosis should be thought of in exactly the same light as endometrium of the uterus. Anything (estrogen) that will stimulate endometrium will cause areas of endometriosis to grow or proliferate. Therefore, the use of estrogen is usually contraindicated in any phase of this disease.

Chocolate cysts are usually diagnosed at the time of surgical intervention and may have an etiologic basis other than endometriosis. Pain usually accompanies endometriosis.

Roscoe Leroy Sensenich

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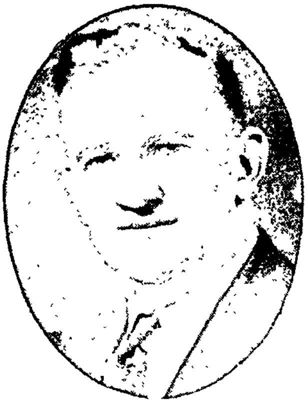

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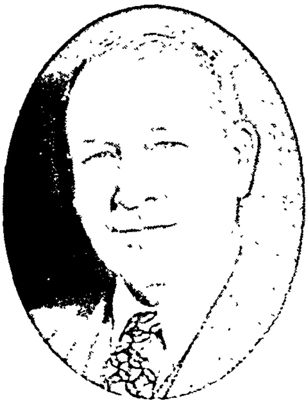

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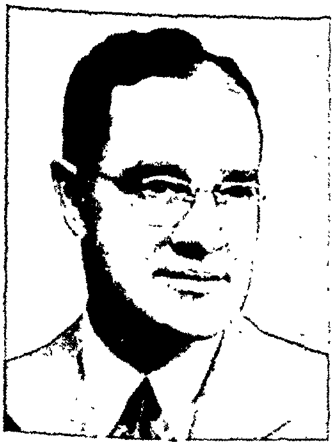

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SYMPATHETIC INNERVATION OF THE HEART IN MAN

Preliminary Observations of the Effect of Thoracic Sympathectomy on Heart Rate

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Control of the heart rate in man has long been sought. Slowing of the rapid heart rate has been attempted by several methods, the common one being the use of body rest and drugs. However, these methods have often failed the physician, and so the search continues for better ways to control the human heart rate.

In 1863 von Bezold[1] clarified especially the control of the heart rate by the vagus nerve. Hunt[2] observed in 1899 that the loss of vagus tone caused an acceleration of heart rate by shortening the diastolic period. It was the conclusion of Krogh and Lindhard[3] in 1913 that the initial acceleration of the pulse in voluntary movement is the result of an outflow of impulses from the cortical motor centers of the vagus. This was distinct from the stimulation of the accelerator nerves via the sympathetic that caused a shortening of systole as well as diastole.

Although Langley[4] in 1892 demonstrated that accelerator impulses to the heart leave the cord by the upper five pairs of anterior roots and their white rami, he erroneously concluded that all such impulses had to travel through the cervical cardiac nerves to reach the heart.

Physiologists did an enormous amount of work on the factors controlling the heart rate, but it was not until 1926 that Cannon and Linton and associates[5] demonstrated in animals that accessory cardiac accelerator fibers are carried to the heart in the twigs of the thoracic sympathetic nerves that lie below the eighth cervical and first dorsal ganglions or stellate ganglion. This important anatomic discovery was soon verified by Braeucker in Germany.[6] Ionesco, Enachescu and Teitel[7] stimulated the nerves from the second through the fifth thoracic sympathetic ganglions and observed acceleration of the heart rate. They also showed, contrary to the previous assumption, that removal of the stellate ganglions alone does not deprive the heart of its accelerators. In 1930 Kuntz and Morehouse[8] in this country showed clearly that cardioaccelerator nerves direct to the human heart come from the second, third, fourth and fifth thoracic ganglions of the sympathetic nervous system. These observations have recently been repeated by Saccomanno, Utterback and Klemme[9] in dogs.

Until now there has been no adequate description of the effects on the human heart rate resulting from the operative removal of these thoracic sympathetic nerves (second to fifth dorsal). This closure of the gap between physiologic indications and application in practice has been dependent on the development of surgical technics of intrathoracic surgery that has come largely in the past decade.

As early as 1932 Leriche and Fontaine[10] mentioned ablation of the cervical-thoracic sympathetic chain but denied experience with this operation. In the discussion they mentioned that this operation had been suggested earlier by Franck but was considered dangerous by Danielopolu as it would sacrifice the vasomotor nerves and cardiac accelerators. Indeed, as recently as 1941 White[11] remarked that by total sympathectomy "the heart would undoubtedly be greatly crippled." However, in 1936, Brouha, Cannon and Dill[12] had shown that totally sympathectomized dogs run, jump, play and look like normal dogs and yet after exercise their pulse rates are 30 to 40 per cent below those of normal dogs. By 1938 Smithwick[13] had done a total sympathectomy on a hypertensive man without ill effects and noted that bradycardia was present. In 1944 Grimson,[14] in reporting bilateral sympathectomy on human beings, mentioned no ill effects on cardiac function. Adson and Brown[15] reported that they had not observed any diminution of pulse accel-

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Read before the Section on Experimental Medicine and Therapeutics at the NinetySixth Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1947.

[1] von Bezold, A.: Untersuchungen uber die Innervation des Herzens, Leipzig, W. Engelmann, 1863.

[2] Hunt, R.: Direct and Reflex Acceleration of the Mammalian Heart with Some Observations on the Relations of the Inhibitory and Accelerator Nerves, Am. J. Physiol. 2:395, 1899.

[3] Krogh, A., and Lindhard, J.: The Regulation of Respiration and Circulation During the Initial Stages of Muscular Work, J. Physiol. 47:112, 1913.

[4] Langley, J. N.: On the Origin from the Spinal Cord of the Cervical and Upper Thoracic Sympathetic Fibers, with some Observations on White and Gray Rami Communicantes, Phil. Tr. Proc. Roy. Soc., London, s. B. 183:85, 1892.

[5] Cannon, W. B.; Lewis, J. T.; Britton, S. W.; Pereira, J. R.; Groeneveld, A.; Linton, J. R., and Linton, R. R.: Studies on the Conditions of Activity in Endocrine Glands: XVII. A lasting Preparation of the Denervated Heart for Detecting Internal Secretion, with Evidence for Accessory Accelerator Fibers from the Thoracic Sympathetic Chain, Am. J. Physiol. 66:326, 1926.

[6] Braeucker, W.: Der Brustteil des vegetativen Nervensystems and seine klinischchirurgische Bedeutung, Beitr. klin. Tuberk. 66:1, 1927.

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[9] Saccomanno, G.; Utterback, R. A., and Klemme, R. A.: Anatomic Data Regarding the Surgical Treatment of Angina Pectoris, Ann. Surg. 125:49, 1947.

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[11] White, J. C., and Smithwick, R. H.: The Autonomic Nervous System, New York, The Macmillan Company, 1941, p. 281.

[12] Brouha, L.; Cannon, W. B., and Dill, D. B.: The Heart Rate of the Sympathectomized Dog in Rest and Exercise, J. Physiol. 87:345, 1936.

[13] Smithwick, R. H.: A Technique for Splanchnic Denervation for Hypertension: Preliminary Report, Surgery 1:1, 1940. Ayman, D., and Goldshine, A. D.: Blood Pressure Determinations by Patients with Essential Hypertension, New England J. Med. 229:799, 1943.

[14] Grimson, K. S.: Total Thoracic and Partial to Total Lumbar Sympathectomy and Celiac Ganglionectomy in Treatment of Hypertension, Ann. Surg. 114:753, 1944.

[15] Adson, A. W., and Brown, G. E.: The Treatment of Raynaud's Disease by Resection of the Upper Thoracic and Lumbar Sympathetic Ganglia and Trunks, Surg., Gynec. & Obst. 48:577, 1929.

eration after effort when the first two or three thoracic ganglions had been severed.

The idea leading to our present observations came from patients who had thoracic sympathetic nerves severed and later noted that their pulse rate was slower and that exercise did not cause as great an increase in heart rate as before operation.

CLINICAL MATERIAL

GROUP I

The first group consists of 7 patients, none of whom had heart disease or during our observation were given drugs such as digitalis. In the first 2 with Raynaud's syndrome, precordial pain and tachycardia, the removal of the thoracic sympathetic ganglions from the second to the fifth dorsal, first on the left side and later the right side, was done. The decrease in pulse rate was most notable after the second or right side had been operated on. These 2 cases support the anatomic and physiologic observations that cardioaccelerator fibers are contained chiefly in the second through the fifth thoracic sympathetic ganglions.

However, in the third case, that of a girl aged 15 with hyperhidrosis, only the second and third dorsal ganglions were decentralized, and yet a decided diminution in pulse rate was observed by the patient and our step tests indicated a diminished acceleration to exercise. The fourth patient, a woman of 56 with Raynaud's disease, had a similar operation (the second and third dorsal ganglions removed from both sides) and yet like others experienced little or no change in the pulse rate.

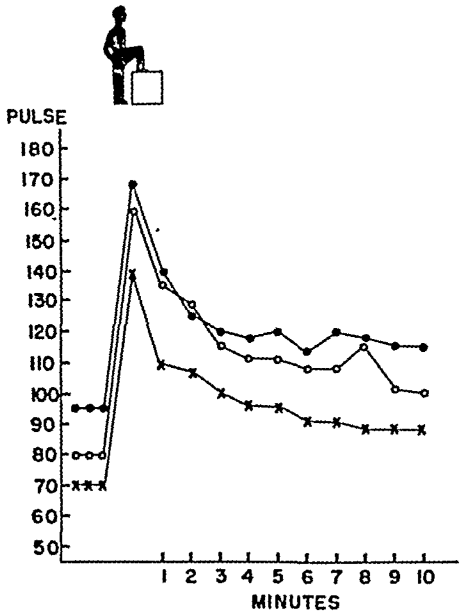

Chart 1.—Pulse response of patient T. E. to step test. Line with solid circles, response before thoracic sympathectomy. Line with open circles, response two months after left sympathectomy (second through fifth dorsal ganglion). Line with crosses, response two months and twenty months after right sympathectomy (second through fifth dorsal ganglions).

The last 3 patients had what we term "sympathetic syndromes"—headache, precordial pain, tachycardia and hyperhidrosis, and had long been suspected to have heart disease and hyperthyroidism, although we could find no evidence of these disorders. The upper five thoracic ganglions were disconnected on the left side of these 3 patients, and all experienced a relief of pain and 2 had relief of tachycardia, both symptomatically and by test.

Case 1.—T. E., a butcher aged 34 years, had Raynaud's syndrome, headaches, slight hypertension and rapid heart action. June 8, 1944, he had a left thoracic sympathectomy (the second, third, fourth and fifth dorsal ganglions), and after this had clinical improvement and less pulse acceleration to the exercise test. March 1, 1945, he had a right thoracic sympathectomy (second, third, fourth and fifth dorsal ganglions). The subsequent course showed the patient asymptomatic and a normal pulse response to the exercise test.

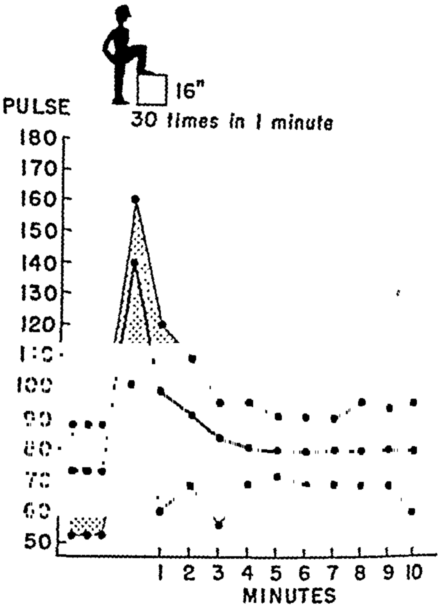

Chart 2.—Normal response to step test.

This patient entered the Baker Memorial Hospital in June 1944, complaining of cold hands and feet for as long as he could remember. In addition, he had known of a high blood pressure and a rapid heart action for several years. An intravenous pyelogram in 1942 was normal. Headaches had troubled him for years. He appeared healthy; the hands were cold and pale; the heart was regular and rapid, and both low and high-pitched systolic murmurs were heard at the apex. The blood pressure was 160 systolic and 88 diastolic. A roentgenogram showed the heart to be normal in size and configuration. The electrocardiogram showed regular rhythm, P waves and P-R interval normal, QRS complexes normal; the T waves were upright 3 mm. in lead 1, 4 mm. in lead 2 and 9 mm. in lead 4.

In the hospital a 16 inch (41 cm.) exercise test was done showing a rapid heart rate that returned to only 116 in ten minutes.

June 8, 1944, a left thoracic sympathectomy was done to relieve his cold hand and to see whether this procedure would slow the pulse or prevent it from accelerating in response to exercise. At operation the second and third sympathetic ganglions were decentralized and encased in a silk cylinder. The fourth and fifth ganglions were removed through the resected fifth rib. Also the second and third intercostal nerves were resected, dividing the roots proximal to the posterior root ganglions.

By June 14 the pulse rate was slower and observers were surprised by the disappearance of his murmurs. His recovery was uneventful, and he left the hospital June 15. August 4 exercise tests showed less acceleration and a decrease to a rate of 100 after ten minutes.

Feb. 26, 1945, he returned to the hospital saying that the left hand had been warm and dry since operation; the right hand still pained on exposure to cold. He was still troubled with palpitation and occasional throbbing headaches, although the latter were less severe since the operation. The examination now showed a slower heart, blood pressure of 150 systolic and 84 diastolic, and a high-pitched systolic murmur could be heard only on inspiration at the left lower sternal border. Because of these symptoms a similar operation was done March 1, and the right second, third, fourth and fifth sympathetic ganglions were disconnected. Recovery was uneventful. On May 18 he reported that he was feeling fine, and the exercise test showed a rise of the pulse rate to 120 and rapid fall to 80. He continued well and on March 16, 1946, a cold postural test of blood pressure was done. His average lying blood pressure was 151 systolic and 66 diastolic and average standing pressure was 147 systolic and 88 diastolic. On cold stimulation he was a normal reactor. The pulse rate averaged 60. He no longer noted headaches, palpitation or cold hands.

May 8, 1946, and Nov. 27, 1946, he was again examined and found fit. He had no complaints, and his resting pulse rate was 60 and blood pressure was 145 systolic and 82 diastolic. His basal metabolic rate was minus 9.

Case 2.—A. M., a nurse aged 41, had attacks of precordial pain, tachycardia and dyspnea. On May 21, 1946, a left thoracic sympathectomy was done (second to fifth dorsal ganglions) followed by decrease in pulse rate and freedom from pain. A right thoracic sympathectomy (second to fifth dorsal ganglions) was done Feb. 3, 1947, and immediately after operation her pulse rate was 48. Her convalescence was uneventful, and two months later the step tests showed a pronounced decrease in pulse acceleration to exercise; she stood the exercise well.

Case 3.—A. P., a school girl, aged 15, had hyperhidrosis. In February 1944, in a bilateral thoracic sympathectomy the second and third ganglions were resected. Her hands have remained dry and warm. The resting pulse rate is slower, and there is less acceleration of rate during exertion.

Case 4.—G. J., a woman aged 56, had Raynaud's syndrome since 1923. March 7, 1947, the right second and third thoracic sympathetic ganglions were resected; March 19 similar ganglions on the left were removed. Recovery was uneventful, and yet her pulse response to the exercise test was the same before and after operation.

Case 5.—H. H., a woman aged 33, had precordial pain, tachycardia, pains in the left arm and hyperhidrosis. She was suspected to have heart disease. Sept. 21, 1945, the thoracic ganglions 1 through 6 were removed. The patient experienced pronounced relief of symptoms and gained 18 pounds (8.2 Kg.). The pulse rate was slower and there was less acceleration to exercise. The symptoms returned in the spring of 1947, and vasomotor tests indicated regeneration of the sympathetic fibers.

Case 6.—K. L., a woman aged 31, had precordial pain, hyperhidrosis, tachycardia and pounding headaches for three years. There was no proof of heart disease. Operations on the breast did not afford relief. July 3, 1945, a left thoracic sympathectomy (second to fifth dorsal ganglions) was done, followed by relief of symptoms and a slower pulse rate. Pain returned in the left costal margin area in the spring of 1947.

Case 7.—C. G., a housewife aged 37, had precordial pain and tachycardia of nine years duration. Jan. 29, 1946, a left transthoracic sympathectomy was done (second to sixth dorsal ganglions inclusive). Subsequently there was relief from pain but slight decrease in pulse rate.

GROUP II

The second group consists of 2 patients who had angina pectoris, 1 also having paroxysmal tachycardia. Both showed a pronounced slowing of the heart rate after both left and right dorsal sympathetic ganglions had been removed. However, in both there was little if any change in the heart rate after the first operation or removal of the first to the sixth dorsal ganglion on the right side and the first to the ninth on the left side.

Case 8.—V. R., a man aged 30 years, had rheumatic heart disease, aortic regurgitation, paroxysmal tachycardia and angina pectoris. Cardiac denervation was done by transthoracic maneuver On March 14, 1947 a left transthoracic sympathectomy was done from the first through the sixth dorsal ganglion, inclusive (Horner's syndrome). A right transthoracic sympathectomy was done on April 8, 1947 from the first through the sixth dorsal ganglion inclusive (no Horner's syndrome). The operation was followed by pronounced slowing of the pulse rate. No paroxysmal attacks of tachycardia have occurred following the operation (five months' follow-up). Angina pectoris is less frequent but not entirely relieved.

Case 9.—M. F., a woman aged 42 years, had angina pectoris, hyper-reactive blood pressure and sinoauricular tachycardia. On Aug. 15, 1946 a left transthoracic sympathectomy was performed from the first through the eighth dorsal ganglion. The top few centimeters of the great splanchnic nerve were removed. A right transthoracic sympathectomy was done on Sept. 4, 1946 from the first through the ninth dorsal ganglion (bilateral Horner's syndrome). There was definite relief of symptoms with slowing of pulse rate and less acceleration to exercise. The patient has experienced no attacks of angina since the operation, although her electrocardiogram remains abnormal.

GROUP III

The third group consists of 4 hypertensive patients who had splanchnic denervations prior to having cardiac denervations. Two of these had Peet operations (the ninth through the twelfth dorsal ganglion) several years before cardiac denervation; 1 of these then had right dorsal sympathectomy (the first through the tenth dorsal ganglion), and two weeks later the left side was done. The other had the left side done first and then the right. Both showed a lowering of the resting pulse rate and a diminished response to the exercise test[16] that was established chiefly after both sides had been operated on.

Case 10.—A. S., a woman aged 44 years had a sympathectomy (Peet maneuver) five years before admission. She had hypertension, type 2[17] with a test range of 197 to 230 systolic and 128 to 160 diastolic. Her heart showed left ventricular enlargement by roentgen rays. Her fundi were grade 2.[17] On April 3, 1947 a right transthoracic sympathectomy was performed from the first through the tenth dorsal ganglion (no Horner's syndrome). A left transthoracic sympathectomy was done on April 18, 1947 from the first to the tenth dorsal ganglion inclusive. This extended down to dural clips of the previous procedure (left Horner's syndrome). There was pronounced decrease in pulse rate and decreased pulse rate response following operation. Immediate relief of angina and headaches were noted, and there was some immediate lowering of blood pressure. Further follow-up will be necessary for evaluation of the latter.

Case 11.—C. C., a man aged 26 years, had had hypertension since the age of 15 years. On physical examination the heart was normal and the fundi were normal. The electrocardiogram was within normal range, renal function normal and blood pressure type 2. On June 9, 1943 a right lumbodorsal splanchnicectomy was performed from the ninth through the twelfth dorsal ganglion. A left lumbodorsal splanchnicectomy was done on June 22, 1943 from the ninth through the twelfth dorsal ganglion. At entry in the hospital in April, 1947, his blood pressure was type 1, as indicated by postural and cold test with test range 134 systolic and 106 diastolic to 176 systolic and 150 diastolic. The fundi showed grade 2 changes. The electrocardiogram was normal. The renal function and heart function were normal. On April 23, 1947 a left transthoracic sympathectomy was performed from the second to the seventh dorsal ganglion. A right transthoracic sympathectomy was done on May 2, 1947 from the first to the eighth dorsal ganglion. There was definite slowing of heart rate and definitely decreased response to exercise immediately following operation.

The other 2 patients in this group had more extensive previous lumbodorsal sympathectomies. One then had the first through the sixth dorsal ganglion removed on the right followed by removal of the first through the seventh on the left; the other had the first through the seventh removed first on the left and later on the right side. Both showed a pronounced decrease in the resting heart rate and a pronounced diminution in acceleration to the exercise test after the second operation.

Case 12.—H. R., a man aged 41 years, had hypertension of seven years duration. In March 1944, blood pressure was decidedly elevated (postural and cold test gave test range 232 systolic and 154 diastolic to 174 systolic and 114 diastolic type 2 pressure). Fundi showed grade 3 changes. An electrocardiogram showed inverted T waves in leads 1 and CF5 and low T2. Renal function and heart function were normal. Right lumbodorsal splanchnicectomy was done on March 7, 1944 from the eighth dorsal through the second lumbar ganglion inclusive. On March 29, 1944, a left lumbodorsal splanchnicectomy was done from the eighth dorsal through the first lumbar ganglion inclusive. After this operation the patient had good symptomatic improvement. The electrocardiogram returned to normal, and there was a fairly good blood pressure response until about four months before the last admission, at which time the blood pressure became greatly increased again and the patient became heart conscious with tightness in substernal area and palpitation. Electrocardiographic changes were consistent with hypertensive heart disease and similar to those noted prior to lumbodorsal splanchnicectomy. On March 8, 1947, a right transthoracic sympathectomy was done from the first through the sixth dorsal ganglion inclusive. On March 21, 1947 a left transthoracic sympathectomy was performed from the first through the seventh dorsal ganglion inclusive (bilateral Horner's syndrome) There was a definite decrease in pulse rate following bilateral transthoracic sympathectomy with decreased response to exercise but practically no change after the first operation or the right transthoracic sympathectomy was done. There was a reversal of the electrocardiogram to normal immediately after transthoracic sympathectomy with disappearance of heart consciousness. Five months after transthoracic sympathectomy, basal pulse rates and pulse rate response remained about the same as immediately after the operation The blood pressure had returned to levels similar to those previous to operation and likewise the electrocardiogram had become abnormal as previously noted. At this time, the patient was placed on a modified rice diet with excellent response. Not only was the blood pressure greatly reduced, but the electrocardiogram reverted toward normal once again.

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[16] Unlike group I the patients in groups II, III and IV were judged unable to perform a test as vigorous as the step test. Hence in these latter groups the "two step exercise test" of Master was used. (Master, A. M.; Nuzie, S.; Brown, R. C., and Parker, R. C.: The Electrocardiogram and the "Two-Step" Exercise, Am. J. M. Sc. 207:435 [April] 1944).

[17] Smithwick, R. H.: Surgical Treatment of Hypertension: The Effect of Radical (Lumbodorsal) Splanchnicectomy on the Hypertensive State of One Hundred and Fifty-six Patients Followed One to Five Years, Arch. Surg. 49:180 (Sept.) 1944.

Case 13.—V. T., a woman aged 48 years, had long-standing hypertension. In 1941 she had a coronary thrombosis In 1945 a lumbodorsal splanchnicectomy was performed; left, the eighth dorsal through the second lumbar ganglion; right, the seventh dorsal through the first lumbar ganglion After lumbodorsal splanchnicectomy, she felt much better in some respects, but palpitation and tachycardia became a major problem. The latter was associated with angia. Palpitation and rapid heart rate were considerably more pronounced than are usually noted after lumbodorsal splanchnicectomy. The patient was readmitted to the hospital because of these complaints On physical examination the patient looked well; the heart showed no change except tachycardia. The electrocardiogram showed changes consistent with coronary heart disease. Renal function was normal. The fundi showed grade 1 changes. On Jan. 17, 1947 a left transthoracic sympathectomy was done from the first through the seventh dorsal ganglion. On Feb. 4, 1947 a right transthoracic sympathectomy was done from the first through the seventh dorsal ganglion (bilateral Horner's syndrome). There was considerable slowing of heart rate following left thoracic and pronounced slowing following the bilateral procedure. The patient has been entirely relieved of tachycardia, but she continues to have symptoms brought about by postoperative hypotension as well as some pain in the chest.

GROUP IV

The fourth group consists of 6 patients with hypertension who had a total thoracic sympathectomy. Four of these 6 were operated on for relief of their angina pectoris as well as to lower their blood pressure. The other 2 were operated on in hope of relieving them of their persistent sinus tachycardia as well as to lower their blood pressure. In all 6 after bilateral thoracic sympathectomy there was a definite decrease in the resting heart rate and a diminished heart rate response to the exercise test.

Case 14.—B. P., a man aged 56 years, had had known hypertension since 1942. Symptoms began six months before admission, the outstanding being substernal oppression and discomfort along the left sternal border which was brought on by exercise, eating and emotional stimulation and which was relieved by rest and glyceryl trinitrate. On physical examination the heart was normal. Blood pressure was type 2 (postural and cold test range being 158 systolic and 106 diastolic to 222 systolic and 170 diastolic). Renal function was normal. The fundi were grade 1 The electrocardiogram showed changes characteristic of hypertensive heart disease. A left transthoracic sympathectomy was performed on Oct. 7, 1946 from the first through the eleventh dorsal ganglion. The great splanchnic nerve was removed from its origin down to the diaphragm. On Oct. 22, 1946 a right transthoracic sympathectomy was performed from the first through the twelfth dorsal ganglion. The great splanchnic nerve was removed from its origin to the celiac ganglion. Horner's syndrome developed only on the right. There was moderate lowering of pulse rate and decidedly decreased response to exercise. Angina was completely relieved immediately after the operation, and the electrocardiogram returned toward normal, although it was not entirely normal three months after the operation. One year after the operation, the basal pulse rate was definitely decreased with decreased pulse rate response. The angina was entirely relieved, with a normal electrocardiogram.

Case 15.—H. L., a man aged 53 years, was known to have had elevated blood pressure for twenty-five years. In 1945 angina pectoris developed which became progressively worse, and he had an occasional attack of angina decubitus; both were relieved by glyceryl trinitrate. There was a strong family history of cardiovascular disease On physical examination, the heart showed no enlargement but the rate was rapid and there was a faint gallop at apex; there was no other evidence of congestive failure The blood pressure was type 2 (test range being 188 systolic and 123 diastolic to 210 systolic and 140 diastolic). Renal function was normal. The electrocardiogram showed changes consistent with coronary and hypertensive heart disease. A right transthoracic sympathectomy was done Oct. 24, 1946 from the first to the twelfth dorsal ganglion inclusive. A left transthoracic sympathectomy was done Nov. 13, 1946 from the first to the eleventh dorsal ganglion (bilateral Horner's syndrome) There was some slowing of the pulse rate following the right total thoracic sympathectomy but decided slowing of pulse rate following the bilateral total thoracic sympathectomy. There was complete relief of angina immediately after the operation, and definite improvement in the electrocardiogram.

Case 16.—H. H., a man aged 45 years, had had elevated blood pressure since 1942. His symptoms consisted chiefly of angina pectoris, headaches, fatigue and increased nervousness which first began in 1945. On physical examination the patient looked well. Fundi showed grade 1 (minimal) changes. No enlargement of heart was evident by roentgen rays but the electrocardiogram was consistent with coronary heart disease. The blood pressure was type 2 (test range 132 systolic and 88 diastolic to 168 systolic and 120 diastolic). Renal function was good. On April 3, 1947 a left transthoracic sympathectomy was performed from the first through the twelfth dorsal ganglion. A right transthoracic sympathectomy was done on April 30, 1947 from the first through the twelfth dorsal ganglion. There was moderate slowing of pulse rate following the left thoracic sympathectomy and decided slowing with decreased response to exercise following bilateral thoracic sympathectomy. Complete relief of angina followed the operation, with a normal electrocardiogram.

Case 17.—G. R., a woman aged 45 years, had had elevated blood pressure since 1932. Physical examination showed an overweight woman who appeared nervous and who had several attacks of pain during the course of her examination and during the exercise test. The heart was enlarged to the left. The blood pressure was type 2 (test range being 172 systolic and 115 diastolic to 232 systolic and 160 diastolic. The eyes showed hemorrhages in the fundi (grade 3). Renal function was good. Electrocardiographic changes were consistent with hypertensive and coronary heart disease. A right transthoracic sympathectomy was done on Feb. 24, 1947 from the first to the tenth dorsal ganglion and a left transthoracic sympathectomy was done on March 15, 1947 from the first to the eleventh dorsal ganglion. There was decided slowing of pulse rate with decreased acceleration to exercise following the operation. There was immediate relief of angina pectoris with moderate lowering of blood pressure immediately following operation. The electrocardiogram remained abnormal.

There was some effect in 4 patients after unilateral sympathetic denervation. Analysis of these 4 cases is also of particular interest in trying to determine which side exerts a dominant influence on the heart rate. Of 2 who had the first to the eleventh dorsal ganglion removed from the left side first, 1 showed a decrease in the heart rate while the other showed a temporary acceleration. Of the other 2 who had a similar operation done on the right side first, there was a similar response.

In the last 2 patients with hypertension and tachycardia but without electrocardiographic evidence of coronary heart disease there was a pronounced diminution in the resting pulse rate and response to exercise after the right dorsal sympathetics were removed. There was some additional effect after the second or left side was operated on.

Case 18.—R. C., a woman aged 48 years, was known to have had elevated blood pressure since 1939. Symptoms began at the same time, being chiefly fatigue, palpitation and occasional substernal oppression. There was no dyspnea, headaches or indigestion. Physical examination showed a patient who looked well. Blood pressure was of type 1, the blood pressure range being 196 systolic and 140 diastolic to 250 systolic and 168 diastolic; the fundi were grade 1; the electocardiogram was normal with exception of sinoauricular tachycardia, the rate being 126 per minute. Renal function and heart function were normal. Right transthoracic sympathectomy was performed on April 25, 1947 from the second through the twelfth dorsal ganglion. Left transthoracic sympathectomy was performed on May 15, 1947 from the second through the twelfth dorsal ganglion. There was pronounced lowering of pulse rate following right thoracic sympathectomy and some additional lowering following left thoracic sympathectomy, with decreased acceleration to exercise.

Case 19.—E. D., a woman aged 48 years, was known to have had elevated blood pressure since 1945; symptoms became troublesome at about the same time and consisted chiefly of heart consciousness, headaches, nervousness and fatigue. There was no angina but palpitation was pronounced when the patient was emotionally stimulated and after exercise. The past history was noncontributory. Results of the physical examination were as follows: The blood pressure was type 3 as indicated by the cold and postural test; test range, 188 systolic and 114 diastolic to 250 systolic and 160 diastolic. The electrocardiogram was normal with the exception of sinoauricular tachycardia; rate, 110. Renal function and heart function were normal The fundi were grade 2. Right transthoracic sympathectomy was performed on April 7, 1947 from the second through the twelfth dorsal ganglion. Left transthoracic sympathectomy was performed on April 28, 1947 from the second through the twelfth dorsal ganglion. There was pronounced slowing of pulse rate after the right thoracic sympathectomy with decreased response to exercise. Practically no additional slowing followed the left thoracic sympathectomy.

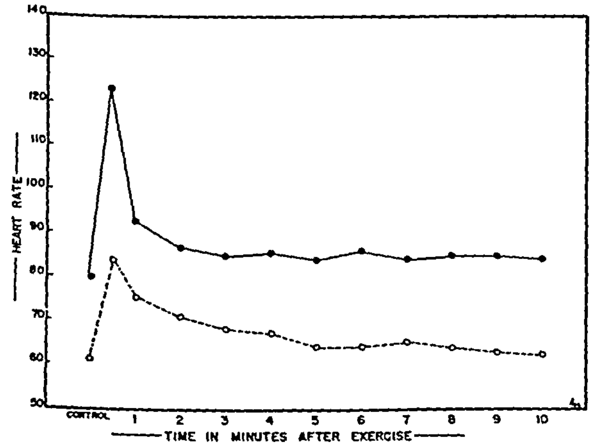

Chart 3.—Exercise tests before (solid line) and after (dotted line) cardiac denervation in 11 patients from groups II III and IV.

SUMMARY

Removal of the thoracic sympathetic ganglions from the second to the fifth dorsal inclusive on the left or right side usually causes some slowing of the basal pulse rate and a diminished pulse response to exercise. Removal of these ganglions from both sides invariably has had the greatest effect on heart rate. The cardiac innervation from the right thoracic sympathetic chain may exert a greater influence on heart rate than that from the left side in some persons, but the origin and course of cardioaccelerator fibers are variable. This variation between the two sides and from person to person is a known characteristic of the sympathetic nervous system.

The evidence so far indicates that in patients who have had more extensive resections of the sympathetic ganglions the effect on the pulse rate has been no greater than in those in whom only the second to the fifth dorsal ganglions inclusive were removed bilaterally. In fact, the effect of sympathectomy on heart rate was no greater in those patients who had splanchnic denervation, supposedly including the adrenals, than in those who had cardiac (second to fifth dorsal ganglion) denervation only.

CONCLUSIONS

Motor pathways (cardioaccelerator fibers) to the human heart appear to be derived from both the right and left second, third, fourth and fifth thoracic sympathetic ganglions. When these ganglions are removed, there is a pronounced reduction in basal pulse rate as well as a diminished acceleration following exercise.

These preliminary observations suggest that this procedure may be of therapeutic value in the control of tachycardia and possibly other disturbances of cardiac rhythm in selected patients.

ABSTRACT OF DISCUSSION

Dr. Keith S. Grimson, Durham, N. C.: It is not possible for me to discuss the treatment of tachycardia and of anginal pain or the justification of sympathectomy since my associates and I have not yet elected surgical treatment and do not favor alcohol block. It is possible, however, to speak of the effects of sympathetic denervation of the heart in 77 patients with hypertension treated during the last seven years by transthoracic subtotal to total sympathectomy. There is debate in the literature that sympathetic denervation of the heart might be good or bad for the coronary circulation in man and that bradycardia might aid or harm cardiac function. The denervation includes both the cardiopulmonary and the splanchnicadrenal-renal area. This operation is always followed by bradycardia and lessened acceleration during exercise of standing, particularly when vasoconstriction remains in the feet. This operation differs decidedly from the Smithwick operation for hypertension, which denervates only the splanchnic area and the lower half of the body and leaves compensatory postural and exercise tachycardia. Dr. Wright Adams ran master step exercise tests on my patients before and after subtotal to total transthoracic sympathectomy. Reduction of blood pressure and of pulse rate occurs, and after operation the recovery trend of blood pressure is up rather than down. Cardiac output in the supine position is reduced, as it is in normal dogs after total sympathectomy. The survival rate of these patients, in spite of an initial serious hypertensive disease process, has convinced us that sympathetic denervation of the coronary arteries and bradycardia is not harmful. Only 9 patients have died since operation. I can therefore approve of the studies presented by Dr. Chapman.

Dr. C. Heymans, Ghent, Belgium: Series of experiments have been performed in our laboratory on dogs, cats and monkeys concerning the effects of the sympathetic and parasympathetic (vagus) on the heart rate. These experiments showed that the increase of heart rate during muscular exercise is principally due to a reduction of the vagal cardioinhibitory tone, to a slight increase of the sympathetic cardioacceleratory tone and to an increase of secretion of epinephrine. In dogs in which complete sympathectomy has recently been done the heart rate only increases up to the automatic rate during exercise. After some weeks, the heart rate of these dogs increases, however, above the automatic rate during muscular exercise, probably by the action of cardioaccelerator fibers present in the vagus. The general behavior and the capacity to stand intense muscular exercise remain normal in dogs whose sympathetic chains have been completely removed. These observations have been confirmed by L. Brouha, W. B. Cannon and D. B. Dill (*J. Physiol.* **87**:345, 1936). I should like to ask Dr. Chapman whether cardioaccelerator fibers coming from the brain and going to the heart through the vagus may also not be partly responsible for the increase of heart rate during muscular exercise in human beings on whom sympathectomy has been done.

DR. EARLE M. CHAPMAN, Boston: I want to thank Dr. Grimson for discussing his experience, which I believe corroborates ours, and then to say in reply to Dr. Heymans that it is gratifying that our observations came from patients who first were operated on for other reasons than to slow the heart. It was their own observations that stimulated us to consider this and go further with it. His observation of the fact that accessory fibers are carried down the vagi in the dog might be true in human beings, but we have no evidence as yet that points that way. We thought the variation in these persons from side to side indicates that even the normal pattern of anatomy of the sympathetic nervous system is a variable and diffuse one. Nature perhaps seeks many pathways in seeing that it gets its accelerator fibers to the heart. Another characteristic of the sympathetic is regeneration and the attempts to overcome these operative procedures. I might tell you about the first patient that was operated on 1942. He had no angina and no discomfort until April of this year, and he then returned and said that his left hand was becoming white again and his pain was returning, so that this procedure is still in the experimental stage and we see here five years later that nature has finally overcome us and sent fibers back through again. Total thoracic sympathectomy causes a fall in the blood pressure, as one expects with this operation, but the thing that one sees with low dorsal sympathectomy, which is an elevation of pulse rate, did not occur. In fact the fall in pulse rate is similar to that after severing only the ganglions from the second dorsal through the fifth dorsal. A nonhypertensive person had a pulse consistently in the upper forties after this upper dorsal sympathectomy, and some concern was felt because of her slow heart, but she has functioned well and has had no discomfort, and her electrocardiograms continue to be normal and she has resumed her activity, with pulse rates now in the sixties.

PERIPHERAL VASCULAR DISEASE IN THE LUNGS

Roentgenologic Manifestations

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Although there has been extensive study of the changes in the peripheral vessels of the systemic circulation when affected by disease either primarily or secondarily, medical literature contains relatively few references to diseases of the peripheral pulmonary vessels. By roentgenologic examination, there is available a window through which one may view the pulmonary circulation in a manner which cannot be utilized in the study of the blood vessels of the rest of the body. It would seem useful, then, to review our knowledge of the conditions which may affect the small vessels of the lung and examine the pathologic and roentgenologic manifestations of them.

In an excellent series of monographs, Brenner[1] has indicated that the arterioles, capillaries and venules of the lung may be subject to degenerative, infectious and neoplastic diseases similar to those encountered in the peripheral vessels of the systemic circulation, but accompanied by entirely dissimilar clinical states (the table). Furthermore, because of the anatomic relation of the lung to the rest of the circulation, it receives in the sieve of its peripheral vessels emboli from a great variety of diseases, many of which become manifest for the first time only after the pulmonary complications.

*Pathologic Classification of Diseases of Pulmonary Arterioles and Capillaries**

1. Sclerosis.
2. Endothelial proliferation.
3. Infections, acute and chronic.
4. Neoplasm.
5. Thrombosis
6. Allergy.
7. Increased permeability.

* Modified, after Brenner.[1] This is a classification, by pathology, of the material discussed in this paper. A great variety of clinical conditions may be included under these few pathologic headings.

To these general divisions in pathology may be added another, of more recent conception, that of the effects of hypersensitivity states on the pulmonary vessels. Alterations in the tone of the small vessels of the lung occur in many allergic states in which the vessels act as the sensitized shock organs.[2] In addition there is a group of diseases in which arteriole and capillary permeability is altered, throughout the body, and this abnormal state may be reflected in changes in the lung recorded by roentgenologic examination.[3]

For practical purposes of clinical diagnosis, peripheral vascular disease of the lung may be considered under three headings: intrinsic disease of the vessel wall or obstruction of the lumen; changes in vessels produced by adjacent disease of the pulmonary parenchyma, and toxic and hypersensitivity states resulting in increased permeability of vessel walls with or without demonstrable organic change in the vessel itself.

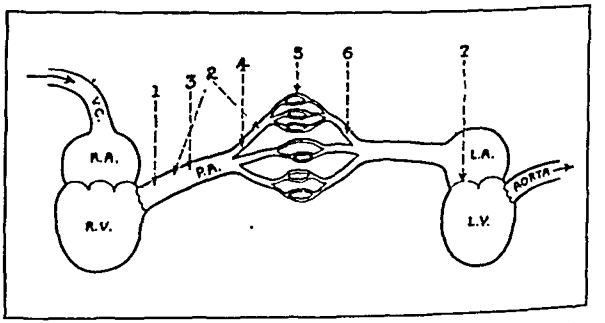

Fig. 1.—In this diagrammatic drawing of the pulmonary vascular system, the peripheral vessels are indicated by numbers 4, 5 and 6. Diseases and insults occurring in these locations form the material discussed in this paper. (The diagram demonstrates the locations of the most common causes of obstruction: 1, congenital heart disease; 2, pulmonary thrombosis, embolism; 3, pulmonary arterial disease; 4, pulmonary arteriolar disease; 5, reduction of capillary bed; 6, venous thrombosis, and 7, mitral stenosis.)

INTRINSIC DISEASE OF PULMONARY VESSELS

In considering intrinsic disease of the pulmonary

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[1] Brenner, O.: Pathology of the Vessels of the Pulmonary Circulation, Arch. Int. Med. **56**:211-237 (Aug.); 457-497 (Sept.); 724-752 (Oct.); 976-1014 (Nov.); 1189-1241 (Dec.) 1935.

[2] Harkavy, J.: Vascular Allergy: Pathogenesis of Bronchial Asthma with Recurrent Pulmonary Infiltrations, Arch. Int. Med. **67**:709-734 (April) 1941.

[3] Rich, A. R.: Role of Hypersensitivity in Pathogenesis of Rheumatic Fever and Periarteritis Nodosa, Proc. Inst. Med. Chicago **15**:270-280 (March 15) 1945. Barden, R. P., and Cooper, D. A.: The Roentgen Appearance of the Chest in Diseases Affecting the Peripheral Vascular System of the Lungs, Radiology, to be published.

vessels, arteriosclerosis, arteriolarsclerosis and pulmonary hypertension are conditions of interest on both pathologic and clinical grounds and because there is still controversy about their identity. Although it is well established that pathologic lesions of arteriosclerosis and obliterative arteriolarsclerosis are frequently found in the lungs, the exact relationship of these findings to pulmonary hypertension and to clinical states of pulmonary failure is not finally decided. While Brenner[1] expressed the opinion that clinical symptoms are rarely present when only these pathologic lesions are found, many others[4] have stated that pulmonary hypertension frequently exists in association with obliterative vascular disease and that pulmonary or cardiac failure commonly supervenes. The relationship of degenerative changes in small vessels to emphysema, on the one hand, and allergy, on the other, is also an interesting controversial point. It seems likely that as improved methods for measuring pulmonary blood pressure during life are developed, some of these points of difference between pathologists and clinicians may be resolved.

However, from the standpoint of the roentgenologic examination of the lungs, one may suspect obliterative vascular disease under certain conditions. First, it so regularly accompanies advanced degrees of pulmonary emphysema that it may be considered as a corollary to that roentgen diagnosis. Second, it should be suspected in patients without emphysema but with pronounced symptoms of pulmonary insufficiency, on the basis of the negative evidence of a roentgenogram showing little deviation from the normal. And third, when pulmonary hypertension from whatever cause has lasted sufficiently long, failure of the right side of the heart ensues with roentgen observations which may be bizarre (Figs. 2 and 3).

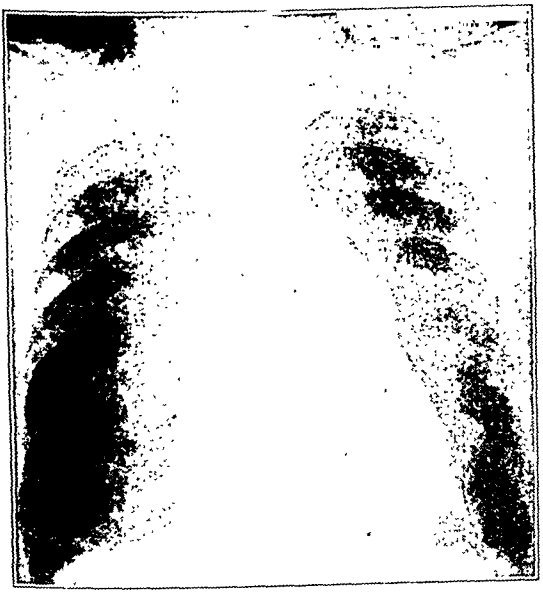

Fig. 2.—From a roentgenogram of the chest of a patient with increasing dyspnea and cyanosis of several years' duration. Because of increased pulsation of the large pulmonary vessels, observed fluoroscopically, and the peculiar cardiac silhouette, it was thought that congenital heart disease was present. Postmortem examination showed a cor pulmonale and no congenital lesion of the heart. There was advanced pulmonary emphysema and fibrosis with obliteration of the lumen of many of the arterioles. It was considered that the increased pulmonary pressure secondary to a decreased arterial bed had resulted in cardiac enlargement and failure.

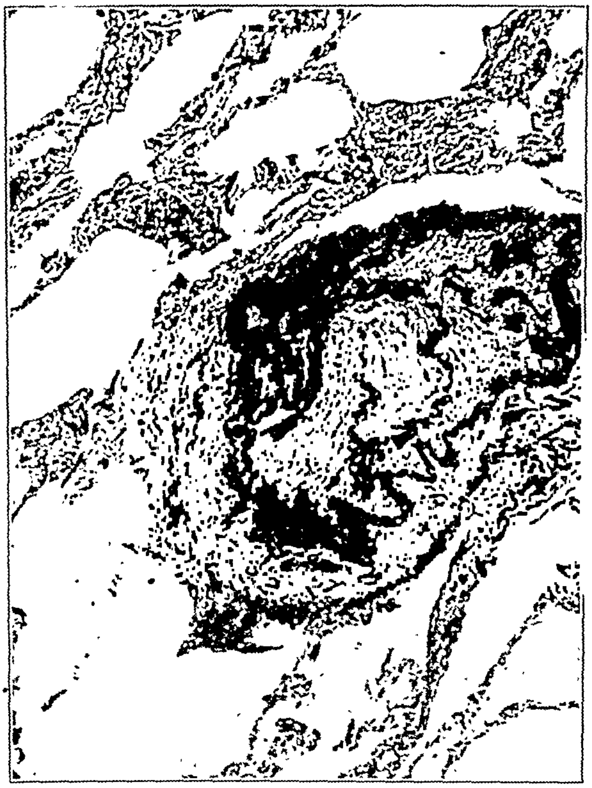

Fig. 3.—Photomicrograph of section of lung from a patient with a clinical history like that of the patient in figure 2, and showing extreme degrees of arteriolarsclerosis. Notice that the lumen of the arteriole in the center of the field has been reduced to a mere slit by the thickening of the intima.

Intrinsic disease which results in obstruction of vessel lumina by foreign material acting as emboli is usually recognized when large vessels are involved and infarcts ensue. However, the concept of bloodless infarcts which cast no roentgen shadow has been described by Westermark[5] and is not widely appreciated. Furthermore, when minute pulmonary blood vessels are obstructed by multiple emboli of whatever nature, the clinical and roentgenologic findings are often difficult to interpret. The predominant roentgen changes are usually exaggeration of the shadows cast by the peripheral vascular bed associated with irregular "beading" which may later become the picture of a diffuse, symmetric bronchopneumonia. Septic and organic and inorganic fragments circulating in the systemic blood vessels are commonly thought to account for the majority of pulmonary emboli.[4d] However, when one considers that pulmonary emboli are regularly associated with some neoplasms, such as carcinoma of the kidney, testis and liver, and may present as the first symptom of others, notably carcinoma and sarcoma of the stomach,[6] or that emboli and thromboses of pulmonary arterioles and capillaries may be expected at some stage of the disease in most leukemias and polycythemia vera, or that a great variety of parasitic infestations, such as malaria,[7]

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4. (a) [illegible] sion in the Pulmonary Circulation, Am. J. [illegible] .) 1927. (b) Sokoloff, M. J., and Stewart, [illegible] osis of the Pulmonary Artery and Arteriole [illegible] 3-412 (March) 1933. (c) Kaump, D. H., [illegible] Arteriolar Disease, ibid. **61**: 1-18 (Jan.) 1[illegible] Jesser, J. H.: Pulmonary Embolism: Diagnosis, Prevention, Management, J. A. M. A. **114**: 1415-1420 (April 13) 1940.

5. Westermark, N.: On the Roentgen Diagnosis of Lung Embolism, Acta radiol. **19**: 357-372, 1938.

6. Greenspan, E. B.: Carcinomatous Endarteritis of the Pulmonary Vessels Resulting in Failure of the Right Ventricle, Arch. Int. Med. **54**: 625-644 (Oct.) 1934.

7. Hodes, P. J., and Fitz-Hugh, T., Jr.: Bronchopulmonary Infections in Malaria, to be published.

schistosomiasis,[8] ascariasis, uncinariasis, and paragonimiasis [9] may affect the peripheral pulmonary vessels by embolism, it becomes clear that interpretation of these roentgenograms of the chest requires skill, experience and knowledge of all the diseases which must be included in the differential diagnosis (figs. 4 and 5).

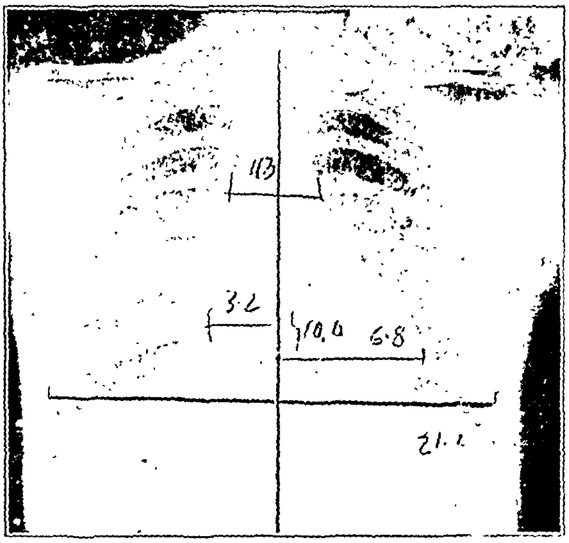

Fig. 4.—A girl aged 12, with cyanosis and dyspnea of four months' duration. She had a history of bathing in water infected with Schistosoma. The ova of this parasite were found in the feces, and the peripheral blood contained 35 per cent eosinophilic cells. Postmortem examination of the lungs in patients with this disease often reveals multiple capillary *emboli formed by ova circulating in the blood. In the roentgenogram* of the chest of this patient, one sees enlargement of the hilar shadows and increased prominence of the pulmonary markings with peripheral shadows in the lower lobes suggesting lobular atelectasis or confluent bronchopneumonia. (This illustration was furnished by Dr. Enrique Koppisch, School of Tropical Medicine, San Juan, Puerto Rico.)

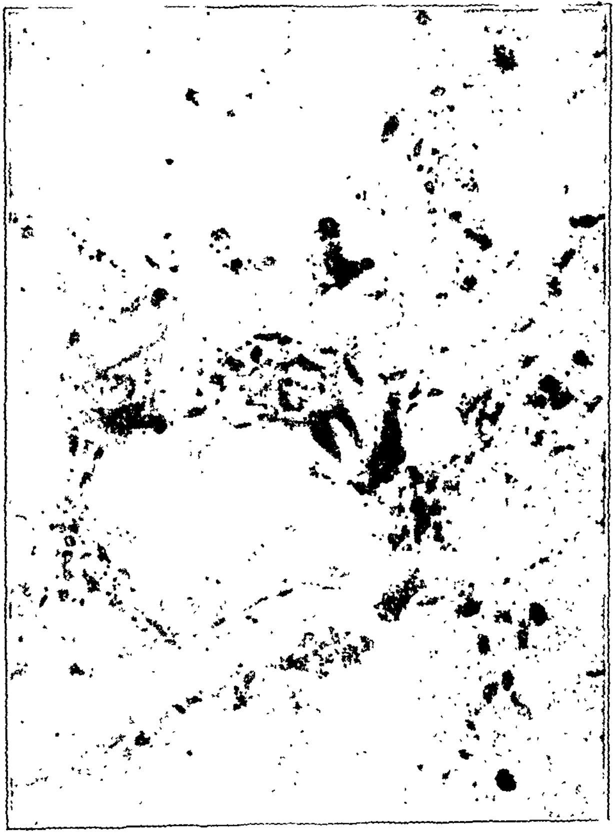

Fig. 5.—Photomicrograph of a section of lung from a patient with schistosomiasis. The dark irregular bodies in the center of the field are ova lodged in pulmonary capillaries. The inflammatory response is not pronounced. (This illustration was furnished by Dr. Enrique Koppisch.)

CHANGES IN VESSELS FROM ADJACENT DISEASE OF PULMONARY PARENCHYMA

The concept that primary diseases of the lung cause changes in and obliteration of adjacent blood vessels is not new. Nevertheless, it is useful to recall that delayed or abortive healing of many of these conditions is due to irreversible damage to the blood supply of the part of the lung involved, and not, as might appear to superficial analysis, to continuation of the disease process itself. A progressive obliterative endarteritis may

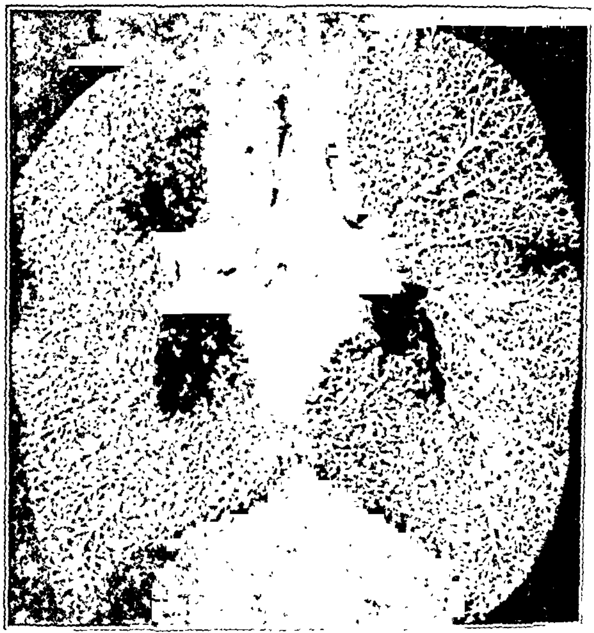

Fig. 6.—Specimen of an excised normal lung with radiopaque material injected into the vascular system. Notice the extensive ramifications of the vessels at the pleural edges. (After Birkelo and Brosius.[10])

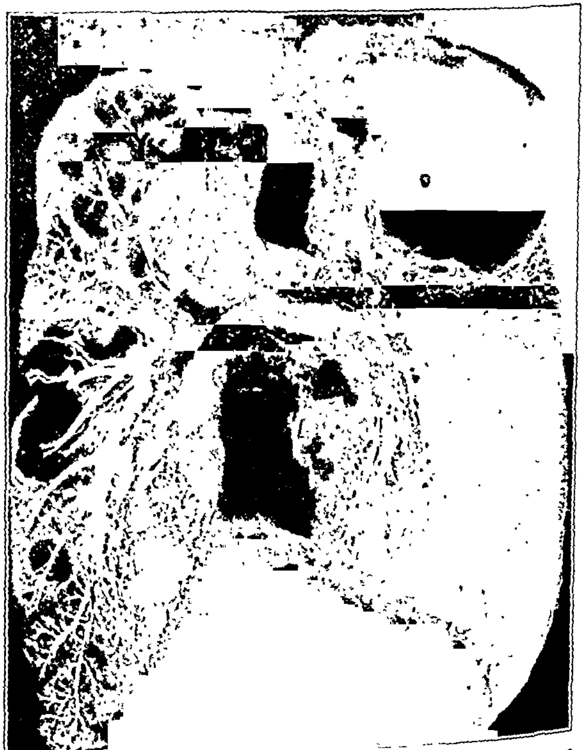

Fig. 7.—Radiopaque material has been injected into lungs from a patient with far advanced pulmonary tuberculosis. *Note the reduction* in the number of small vessels in the right lung in particular. (After Birkelo and Brosius.[10])

accompany acute pneumonias of any type and is always found in chronic inflammatory conditions and neoplasms of the lung. Progressive loss of blood supply is one of the fundamental pathologic changes accompanying chronic pulmonary tuberculosis[10] (figs. 6 and 7) and is also seen in silicosis with the development of large anemic infarcts, and this process is directly related to the impaired pulmonary function so regularly found in these conditions. The combination of restricted ventilatory capacity due to interstitial fibrosis and pleural thickening, and arterial disease, rapidly exhausts the reserve of the pulmonary system and produces pronounced symptoms of respiratory insufficiency.[4c] It is therefore important in evaluating the roentgenologic evidence of primary pulmonary disease to bear in mind the factor of peripheral vascular disturbance and its influence on pathogenesis, treatment and prognosis.

TOXIC AND HYPERSENSITIVITY STATES

The response of peripheral pulmonary vessels to a hypersensitivity state of the body as a whole is a nonspecific one, as Gregory and Rich have shown.[11] Reversible changes are found in some forms of bronchial asthma in which the pulmonary vessels act as shock organs.[12] As sensitization becomes more profound, organic destruction of the vessel walls occurs with necrosis. The pathologic lesion of blood vessels produced in this way has been found in experimental animals and man and is indistinguishable in a great variety of clinically and etiologically different conditions. It may be found in poisoning with sulfonamide compounds and serum sickness of all types and occurs as part of such generalized diseases as eczema, lupus erythematosus, acute rheumatic fever and periarteritis nodosa.[13]

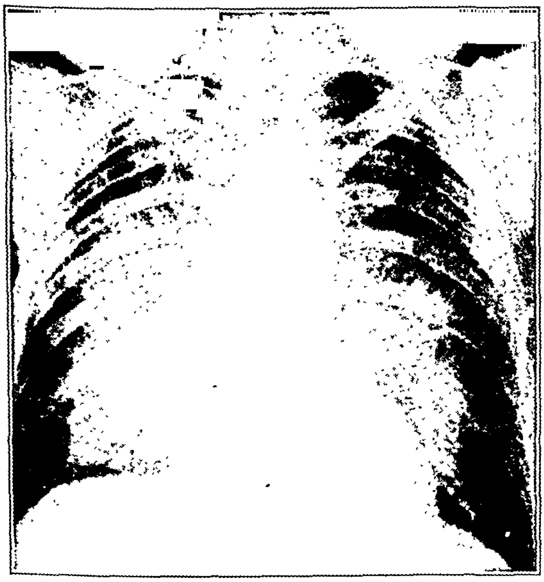

Fig. 8.—Roentgenogram of the chest of a patient with periarteritis nodosa, during an episode of acute pulmonary failure. Notice the position, rather symmetric distribution and fluffy character of the shadows. They may be evanescent, and disappear almost completely in twenty-four to forty-eight hours, as occurred in this patient.

The uniform response to such functional or organic impairment of the integrity of the vessel wall is its increased permeability to serum and plasma resulting in patchy or massive edema in the lungs and reflected by a characteristic shadow pattern on the roentgenogram of the chest (fig. 8).

The usual appearance is that of massive, fluffy shadows extending outward from each hilus in a symmetric fashion and occupying the inner two thirds of each pulmonary field. The periphery of these shadows blends imperceptibly with the adjacent aerated lung. In patients with less explosive symptoms the roentgen picture may be that of scattered subpleural shadows, again without definite margins and rapidly enlarging and merging together. Finally, in chronic or recurring subacute diseases, the appearance may be indistinguishable from bronchopneumonia.[11] The unusual features of the roentgen findings are the hilar or subpleural location of the shadows and the "cotton wool" appearance which they present. If healing occurs, as in some instances of acute rheumatic fever, pulmonary nodulation results, *and may be depicted by the roentgenogram (fig. 9).*

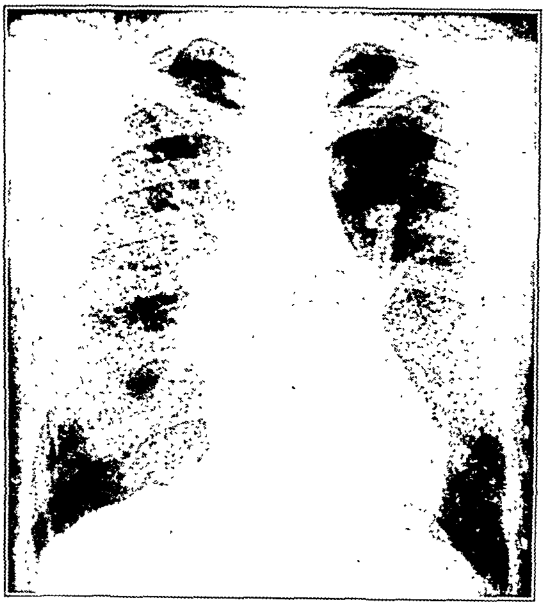

Fig. 9.—Roentgenogram of the chest of a patient who had recovered from acute fulminating rheumatic fever with pulmonary involvement. The fine, symmetric nodulation simulates silicosis. The appearance of the lungs has not changed during a twelve year follow-up period during which the patient has remained well. The pulmonary nodules are thought to be due to perivascular foci of connective tissue or deposits of hemosiderin.

The exact composition of these nodules is in dispute, some believing they are formed by perivascular connective tissue[15] and others stating that they represent deposits of hemosiderin remaining after resorption of extravasated red blood cells.[16]

The effects of exogenous or endogenous toxins on the walls of small vessels are identical in every way with the manifestations of hypersensitivity. Thus, pulmonary edema or hemorrhage follows such widely different conditions as the inhalation of irritating gases, epidemic influenza and glomerulonephritis in its terminal stages. In these three examples, increased permeability of peripheral vessels occurs as a result of the injury caused by *(a)* chemical, *(b)* bacterial and *(c)* metabolic poison.

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[10] Birkelo, C. C., and Brosius, W. L.: Roentgen Visualization of Pulmonary Arterial Circulation in Autopsy Material, Radiology **31:** 261-292 (Sept.) 1938. Charr, R., and Savacool, J. W.: Changes in the Walls of Tuberculous Pulmonary Cavities, Arch. Path. **30:** 1159-1171 (Dec.) 1940.

[11] Gregory, J. E., and Rich, A. R.: Experimental Production of Anaphylactic Pulmonary Lesions with Basic Characteristics of Rheumatic Pneumonitis, Bull. Johns Hopkins Hosp. **78:** 1-12 (Jan.) 1946.

[12] Harkavy, J.: Vascular Allergy, J. Allergy **14:** 507-537 (Nov.) 1943.

[13] Grant, R. T.: Observations on Periarteritis Nodosa, Clin. Sc. **4:** 245-276 (Oct.) 1940.

[14] Elkeles, A., and Glynn, L. E.: Serial Roentgenograms of the Chest in Periarteritis Nodosa as an Aid to Diagnosis, Brit. J. Radiol. **17:** 368-373 (Dec.) 1944.

[15] Pappenheimer, A. M., and Von Glahn, W. C.: Specific Lesions of Peripheral Blood Vessels in Rheumatism, Am. J. Path. **2:** 235-249 (May) 1926. Epstein, E. Z., and Greenspan, E. B.: Rheumatic Pneumonia, Arch. Int. Med. **68:** 1074-1094 (Dec.) 1941.

[16] Scott, L. D. W.; Park, S. D. S., and Lendrum, A. C.: Symposium: The Clinical, Radiological and Pathological Aspects of Pulmonary Hemosiderosis, Brit. J. Radiol. **20:** 100-107 (March) 1947.

To complete this review, it should be mentioned that changes on roentgenograms of the chest may be found in some deficiency states when vascular permeability is altered. This has been suggested as occurring in long-standing protein deficiency and beri-beri,[17] and more recently in a peculiar iron deficiency described by Waldenstrom.[18]

From the foregoing discussion, it is evident that specific roentgenographic changes cannot be expected in the many disease entities which involve the small vessels of the pulmonary system. However, in some of these conditions a shadow pattern characteristic of vascular damage may develop during roentgenologic study. If this evidence is properly evaluated, it may point the way to further investigation and clarification of an otherwise obscure disease, and thus render invaluable assistance to the patient.

SUMMARY

An attempt has been made to point out the roentgenologic manifestations of a great variety of diseases which affect the peripheral blood vessels of the lung and may produce changes in roentgenograms of the chest. These conditions include arteriolarsclerosis, emboli of all types, many primary pulmonary diseases and allergic and hypersensitivity states of the lung or the body as a whole.

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ABSTRACT OF DISCUSSION

Dr. Francis M. Rackemann, Boston: I have a special interest in this paper, for it suggests an approach to an important problem. What happens when a man remains healthy up to the age of about 50 and then suddenly gets asthma which persists and may become severe? In order to answer that question one must know much more about the function of the lung. The symptom might depend on some lesion in the smaller bronchi or on a lesion in the alveolar membranes or in the lymphatics of the lung, but as Drs. Barden and Cooper point out, it is most likely that the lesions are located in the pulmonary blood vessels. The roentgenologists with whom I talk tell me that these diffuse shadows that one sees so often are of blood vessels much more than of the bronchi, even though one concedes that at the same time the bronchi are infected and that there is thickening of the bronchial wall. In ordinary cases the roentgenogram indicates pathologic changes that are gross, so that at autopsy one can see them without a microscope. It is hard to consider how the roentgenogram can show lesions which are microscopic, but this paper shows, again, that when microscopic lesions are grouped together a characteristic change occurs and that change is gross and therefore can be demonstrated by the roentgenogram. It is important to notice that the changes here are diffuse throughout both sides of the chest and therefore in great contrast to other lesions which are localized to one lung or, better still, to one area of one lung. Another thing that is important—and it is a good argument for the conception that these lesions are of vascular origin—is the fact that in the considerable variety of clinical states which Dr. Barden has described the roentgen lesions are much the same in each one of them. After all, is not that quite what it should be, if one assumes that the lesions depend on vascular disturbances which are scattered throughout the lung field? Are they not produced by a mechanism, the principle of which is common and the same in each case? This paper has given me much food for thought, and I am grateful accordingly to Drs. Barden and Cooper.

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[17] Weiss, S., and Wilkins, R. W.: The Nature of the Cardiovascular Disturbances in Vitamin Deficiency States, T. A. Am. Physicians **51:** 341-373, 1936. Mecray, P. M.; Barden, R. P., and Ravdin, I.: Nutritional Edema, Surgery **1:** 53-64 (Jan.) 1937.

[18] Waldenstrom, J.: Relapsing Diffuse Pulmonary Bleedings or Hemosiderosis Pulmonum, Acta radiol. **25:** 149-162, 1944.

THE BONE BANK

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and

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The necessity for additional bone for certain orthopedic operations has undoubtedly presented itself to surgeons many times. Secondary operations to obtain more bone are the result, thus prolonging the operative time, increasing morbidity and occasionally promoting a complicating factor. In certain patients, especially children, it may be difficult or impossible to obtain enough autogenous bone for the operation. Spinal fusions for scoliosis and disorders of the lower part of the back, the filling of large bone cysts and the replacement of defects in bone are a few of the common problems in which large quantities of bone are necessary. Macewen[1] in 1878 was the first to report the use of homogenous bone to rebuild a humerus. In recent years Ghormley[2], Inclan[3] and Smith[4] have reported the use of homogenous and syngenesious bone with good results. Inclan reported success in 24 of 34 cases with autogenous bone and in 6 of 8 cases with homogenous bone preserved in a refrigerator at plus 2 to plus 5 C. in saline solution, in saline solution and blood, or in citrate and blood. Smith in 2 cases kept bone in a refrigerator at approximately plus 4 C. and then autoclaved it just prior to use. In a hitherto unpublished case (Jan. 9, 1942) he employed bone refrigerated eighteen days without further treatment except washing in saline solution before using.

In 1945 the need for more bone became so apparent in patients suffering from severe scoliosis that Dr. William H. Von Lackum of the New York Orthopedic Hospital suggested a "bone bank." One of us (C.Z.G.) designed the bottles for storage. Excess bone which was formerly discarded in many operations was then placed in an ordinary refrigerator at plus 2 to plus 5 C., where it was kept for periods up to three weeks. The disadvantage of this method was that bone could be preserved for only a short period of time.

Read before the Section on Orthopedic Surgery at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

From the New York Orthopedic Hospital. Dr. Bush was formerly Annie C. Kane Fellow at New York Orthopedic Hospital. Dr. Garber is Pathologist, New York Orthopedic Hospital.

[1] Macewen, W.: The Growth of Bone: Observations on Osteogenesis; an Experimental Inquiry into the Development and Reproduction of Diaphyseal Bone, Glasgow, James Maclehose and Sons, 1912.

[2] Ghormley, R. K., and Stuck, W. G.: Experimental Bone Transplantation with Special Reference to the Effect of "Decalcification," Arch. Surg. 28: 742 (April) 1934.

[3] Inclan, A: The Use of Preserved Bone Graft in Orthopaedic Surgery, J. Bone & Joint Surg. 26: 81, 1942.

[4] Smith, A. DeF.: Use of Homologous Bone Grafts in Cases of Osteogenesis Imperfecta, Arch. Surg. 34: 687 (April) 1937.

A review of the literature[5] gave some help on the problem of preservation of tissues but little regarding bone, especially for prolonged periods. We decided that if foods, serums and other perishable substances could be kept in a low temperature freezing cabinet, then perhaps this method could be used to preserve bone so that a constant supply would be available at all times. Experiments were undertaken to determine whether this was safe and what the tissue reactions would be to bone which had been preserved by freezing, whether autogenous or homogenous. The ilium, being cancellous bone and readily accessible, was considered as being suitable for studying osteogenesis and tissue reactions.

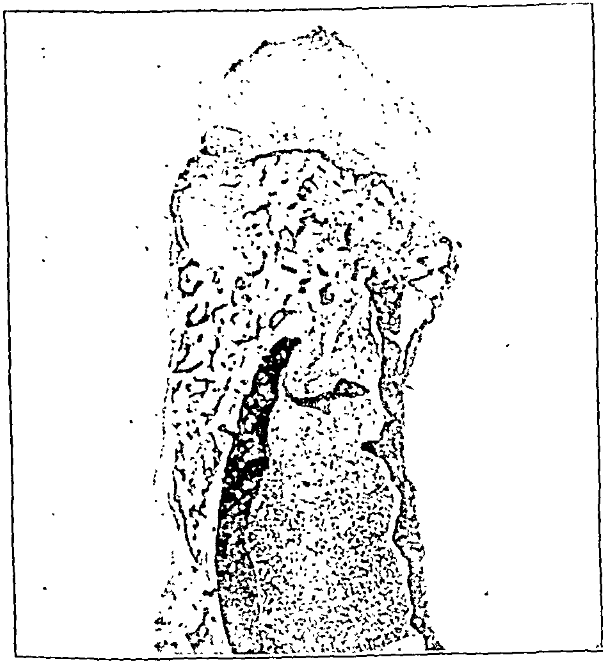

Figure 1.--Autogenous graft, fresh, 28 days in animal 107. Result was graded as "excellent."

Experimental Studies

Large chinchilla rabbits were used. Control studies were made with fresh autogenous and fresh homogenous grafts. Both iliac bones were used so that a parallel study could be made under the same conditions for both types of bone.

The next series of experiments dealt with bone which had been stored in a freezer at approximately minus 24 C. With the rabbit under pentobarbital sodium anesthesia, the bone was removed, placed in storage bottles and frozen for periods of one, two, four, eight and twelve weeks before being grafted. The homogenous grafts were placed on the left ilium and the autogenous grafts on the right ilium. The grafts were removed with a ¾ inch (1.9 cm.) tubular saw fashioned from a cork drill so that the bed and the graft were always of the same shape and size. The grafts were held in place by means of tantalum wire, which was threaded through drill holes in the graft and in the ilium and twisted until the graft was held firmly in place. The wounds were closed with interrupted cotton sutures. There were no casualties and in only one wound was there a superficial infection. The rabbits were killed at three and six week intervals, and the grafted areas were studied grossly, roentgenographically and microscopically. Thirty-two bone transplantations were made by twenty-eight operations on 19 animals. Twenty-nine of the grafted areas were considered suitable for analysis. Results are expressed in terms of a "healing index" as shown in table 1.

TABLE 1.—*Order of Healing of Grafts*

	Healing Index*	
1. Autogenous fresh	13/5	2.6+
Autogenous frozen 7 days	8/3	2.66†
2. Autogenous frozen 14 days	5/3	1.66§
Homogenous fresh	6/4	1.5
Autogenous frozen 28-84 days	4/3	1.33
3. Homogenous frozen 7-84 days	7½/7	1.07¶
Autogenous boiled.	2/2	1.0
4. Homogenous frozen boiled	1/2	0.5

*This is a figure derived from a numerator representing a summation of grading figures and a denominator denoting the number of transplants involved. In grading the individual case 4 equals excellent (pronounced restitution toward normal architecture), 3 equals excellent to good, 2 equals good (graft fused to bed of host, metaplastic new bone formation along at least one side of the cortex and also extending up into medulla for a short distance), 1 equals fair (graft only fused to bed of host, with or without callus on one side of cortex) and 0 equals nonunion (or excessive peripheral resorption of bone and little formation of new bone).

+Figure 1.
†Figure 2.
§Figure 3.
¶Figures 4 and 5.

Frozen bone grafts regularly became attached to suitably prepared beds of host bone and were slowly and at least partially replaced by new bone formed by the host through metaplasia or creeping substitution. Fresh autogenous bone and autogenous bone preserved in frozen condition for one week and even for two weeks were more quickly and completely reconstituted into bone approaching normal architecture than frozen homogenous bone, but there was little difference in favor of autogenous bone when preservation in the frozen state was prolonged beyond twenty-eight days. This seems to indicate that the autogenous bone cells usefully survived freezing at minus 24 C for one week and that some cells survived for two weeks. The possible effect of slow denaturization of autogenous protein is also to be considered.

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[5] (a) Marchand, F.: Der Process der Wundheilung mit Einschluss der Transplantation, Stuttgart, Ferdinand Enke, 1901. (b) Carrel, A.: The Preservation of Tissues and Its Applications in Surgery, J.A.M.A. 59:523 (Aug. 17) 1912. (c) Keith, W.S.: Small Bone Grafts, J. Bone & Joint Surg. 16:314, 1934. (d) Matthews, D.N.: Storage of Skin for Autogenous Grafts, Lancet 1:775, 1945. (e) Strumia, M.M., and Hodge, C.C.: Frozen Human Skin Grafts, Ann. Surg. 121:860, 1945. (f) Waterman, A.J.: Viability of Embryonic Chick Tissues Following Storage at Low Temperatures, Growth 8:175, 1944. (g) Webster, J.P.: Refrigerated Skin Grafts, Ann. Surg. 120:431, 1944. (h) Mider, G.B., and Morton, J.J.: Effect of Freezing in Vitro on Some Transplantable Mammalial Tumors and on Normal Rat Skin, Am. J. Cancer 35:502, 1939.

Epiphysial cartilage attached to bone which had been frozen for two weeks was necrotic when examined three or more weeks after implantation and was noted to interfere locally with formation of new bone. Boiled autogenous bone grafts were inferior to frozen bone grafts, the medulla being poorly revascularized and showing no formation of new bone. The importance of reestablishing circulation in bone transplants is indicated by the inferior formation of new bone in several animals in which grafts had become augulated thereby preventing revascularization directly from medulla of the host.

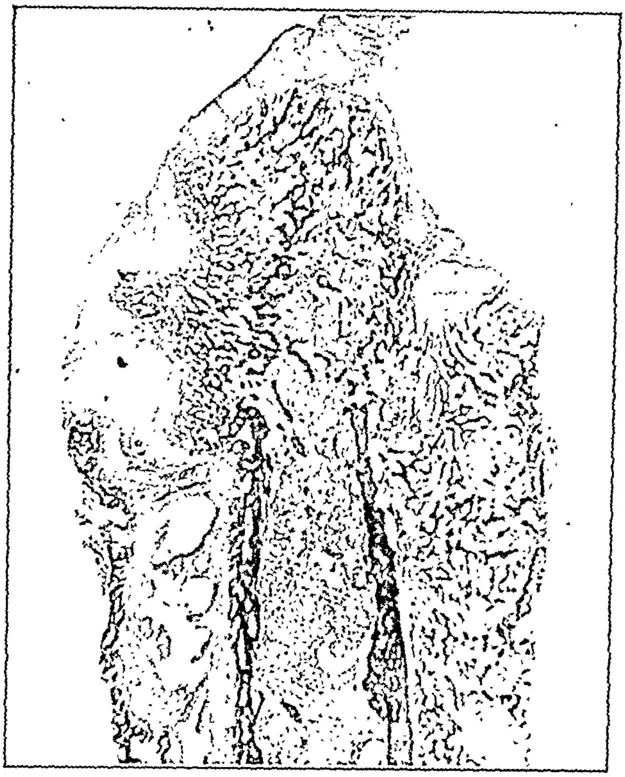

Figure 2.--Autogenous graft, frozen at minus 25 C. for 7 days prior to implantation, 21 days in animal 107. Result was graded as "excellent."

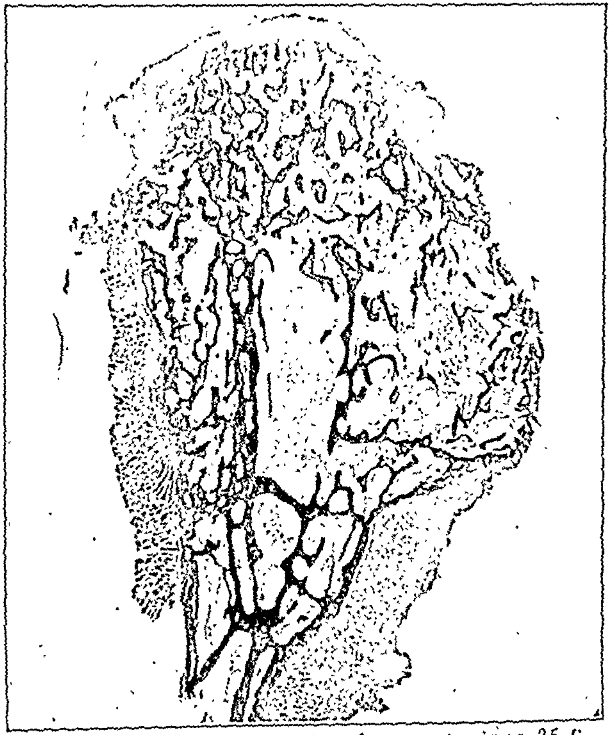

Figure 3.--Autogenous graft, frozen at minus 25 C. for 14 days prior to implantation, 42 days in animal 108. Result was graded as "excellent."

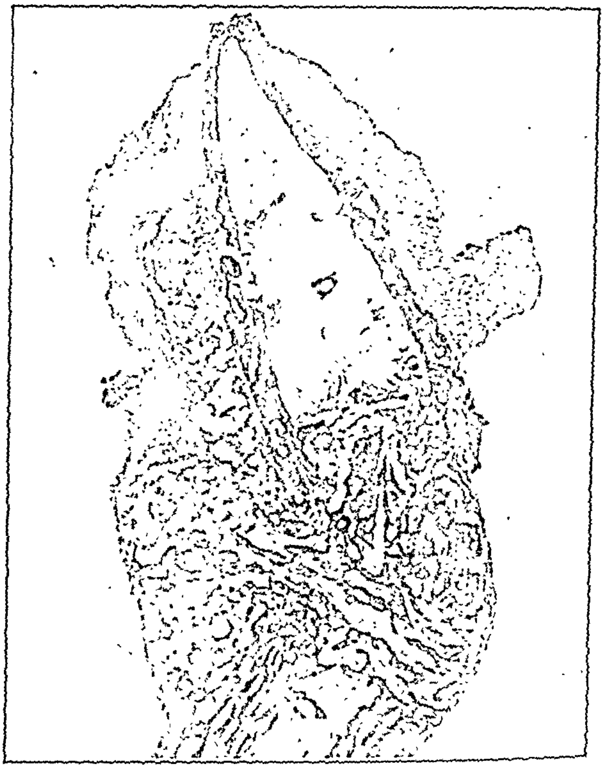

Figure 4.--Homogenous graft, frozen at minus 25 C. for 14 days prior to implantation, 42 days in animal 108. Result was graded as "fair to good." There was poor revascularization of marrow in the graft.

The inclusion of boiled autogenous bone as a part of this experiment is not without merit in establishment of a base line. Accidents in operating rooms have occasionally resulted in enforced use of such material, and with clinical success. Numerous experiments with animals recorded in the literature[6] have shown that boiled grafts can be made to succeed though they do so rather slowly as compared with fresh autogenous grafts. The healing index of our homogenous frozen bone was in the same range as that of autogenous boiled bone, though slightly higher. More exact establishment of this point with a considerable number of dogs is desirable.

CLINICAL STUDIES

Having proved that this method of preserving bone was successful in animals, we felt that it was safe to attempt it in man. Thus all available clean fresh bone was placed in

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[6] Marchand,[5a] Key, J.A.: The Effect of a Local Calcium Depot on Osteogenesis and Healing of Fractures, J. Bone & Surg. 16:176, 1934. Orell, S.: Surgical Bone Grafting with "Os Purum," "Os Novum," and "Boiled Bone," J. Bone & Joint Surg. 19: 873, 1937.

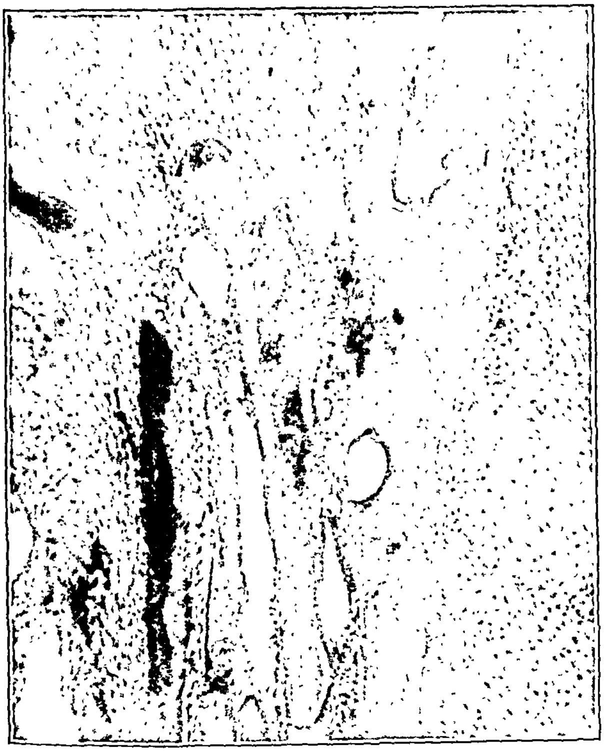

Figure 5.--Homogenous graft, frozen at minus 25 C. for 84 days prior to implantation, 21 days in animal 103. Result graded as "fair to good" at low power. However, this high power view shows formation of abundant cartilage callus and metaplastic osteoid tissue adjacent to the necrotic eroded bone of the graft.

bottles as illustrated (fig. 6) and frozen at minus 25 C. Because infection developed in 1 case, the bone is now kept for two weeks before using, while the donor remains under observation for evidence of developing wound infection. In a previous paper by one of us (L.F.B.)[7] the additional precautions of a negative serologic reaction for syphilis and no history of recent jaundice, malaria or infection were outlined. All the necessary data concerning the donor and the specimen are filed in a card index (table 2).

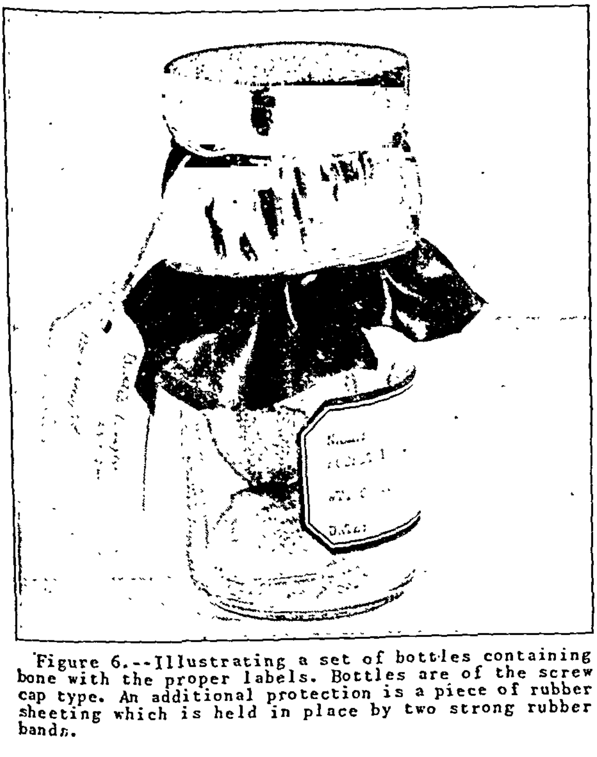

Figure 6.--Illustrating a set of bottles containing bone with the proper labels. Bottles are of the screw cap type. An additional protection is a piece of rubber sheeting which is held in place by two strong rubber bands.

TABLE 2.—Data Kept in Card Index

Bone Bank	
Donor's Name:	Hospital No.
Source of Bone:	Weight of Bone*
Recent Infections:	
Wassermann:	
Date Stored:	
Recipient	
Name:	Hospital No.
Operation:	
Date Used:	

*The weight of the bone is recorded chiefly to give an index as to the amount of bone present in the bottles.

The donor bone is obtained from any clean source, the largest and best supplies coming from the tibia and the ilium. By the exercise of diligence, considerable bone may be accumulated from many sources. In operative procedures in which part of the ilium is sacrificed and in many others in which the tibia is exposed for autogenous onlay grafts, extra bone may be placed in the bottles for the bank. Bone used to date has been from living sources. Larger quantities of bone will be obtained eventually from other clean sources in instances of death by trauma, still-born infants, and clean amputations. Autogenous bone may likewise be stored for use in secondary operations.

CLINICAL RESULTS

At the present time homogenous bone has been used in 126 operations in 104 patients. Of these, 24 operations were by direct transfer; refrigeration at plus 2 to plus 5 C. was used in 37 instances, and the bone was stored in deep freezer for 43 operations.

Donor bone has been used in any case in which extra bone was required, the chief uses being spinal fusions for scoliosis and diseases of the lower part of the back; filling bone cysts with chips; fusions of various joints and rare diseases such as osteogenesis imperfecta. The addition of homogeneous bone after a Hibbs type of spinal fusion has proved to be most helpful, judging from the results studied in 91 patients.

The evidence accumulated to date shows that donor bone is of definite value in bone-grafting operations. The time required for operations is lessened and the necessity of secondary operations in many instances is eliminated.

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[7] Bush, L. F.: The Use of Homogenous Bone-A Preliminary Report on the Bone Bank, J. Bone & Joint Surg., to be published.

Biopsy studies have been possible where homogenous bone was used in multistage spinal fusions for scoliosis. Microscopic examination of the tissues seemed at first discouraging, because the bone spicules of the graft were dead and disintegrating and exhibited a relatively small amount of marginal metaplastic new bone, but grossly there appeared to be excellent formation of new bone. The donor bone furnished a framework for the formation of new bone by substitution and by furnishing the necessary calcium for this new bone.

TABLE 3.--Summary of Data on 126 Operations

Total patients -	104
Total operations -	126
Operations:	
Spinal fusions	
(a) Scoliosis	44
(b) Lumbosacral	14
(c) Repair pseudarthrosis	18
(d) Spinal fracture	4
(e) Adolescent kyphoses	3
(f) Tuberculosis of spine	8
Bone cysts, filling with chips	6
Ununited fractures in osteogenesis imperfecta	4
Fusion, wrist	2
Onlay graft for congenital pseudarthrosis of tibia	1
Infections--2	

COMPLICATIONS

Complications have been few. In the 104 cases in which donor bone was used, there were 4 complications, as follows: infections, 2; fracture of onlay grafts, 1, and failure of soft tissue coverage, 1.

SUMMARY

Experimental bone-grafting studies on rabbits showed: *(a)* Freezing at low temperature is a safe method of prolonged preservation of bone for grafting purposes. *(b)* Bone grafts three to six weeks after implantation were successful in the following descending order efficiency: (1) autogenous fresh, autogenous frozen 7 days, (2) autogenous frozen 14 days, homogenous fresh, autogenous frozen 28 to 84 days. (3) homogenous frozen 7 to 84 days, autogenous boiled. The implications of these results cannot be extended from rabbit to man with any certainty, and the experiment should be repeated with a large number of other animals. *(c)* Epiphysial cartilage attached to bone which had been frozen for two or more weeks became histologically necrotic after implantation and interfered locally with osteogenesis. *(d)* Circulation played a most significant role in the success of grafting experiments. Proper seating of the graft was important.

Human bone is preserved apparently indefinitely in a freezer at minus 20 to 30 C.

Donor bone has been used in 126 operations on man with but 4 complications.

The successful results obtained prove the value of donor bone which the bone bank makes available in a constant supply.

ABSTRACT OF DISCUSSION

Dr. J. R. COBB, New York: The development of the bone bank is one of the most important advances in orthopedic surgery. Our experiences at the Hospital for Special Surgery support this work of Dr. Bush and Dr. Garber. During the past twelve years we have studied the healing of the patient's own bone in the two stage fusion operations for scoliosis. Some of the patient's tibial bone chips used for the first stage spinal fusion were removed at the second stage (at varying intervals of two weeks to several months) and studied microscopically. These specimens all show dead and revascularizing bone. Whether we use the patient's own fresh bone or refrigerated bone from the same patient or from other donors, the results seem to be essentially the same both clinically and on microscopic examination. We have been using a bank for refrigerated bone since April 1946. Dr. Philip Wilson reported our results at the meeting of the American Surgical Association on March 27, 1947. At that time we had used refrigerated bone from 38 donors in 28 operations on 23 recipients. As an indication of our satisfaction with the results to date we have already increased these figures to 51 donors and 41 recipients. We have had no infections and our only complications have been: 1 instance of pseudarthrosis in a spinal fusion for transection of the cord with anesthesia when adequate immobilization in plaster was impossible because of pressure sores; 1 extrusion of chips following an attempt to fuse and repair a spinal fluid leak, and 1 soft tissue slough which healed in a few days. While we usually wait 72 to 96 hours for a negative culture report before using the bone, we have used it the same day and as late as 89 days, the average being 42 days. We believe that if it is kept constantly at a sufficiently low temperature without contamination and properly sealed bone can be kept indefinitely, but we have so many needs for extra bone that it does not stay in the bank long. In most of our cases we have given the recipient 50,000 units of penicillin every three hours for the first few days or until the temperature is normal. In 1 case of severe paralytic scoliosis we used bone from 9 donors in a three stage fusion, with excellent results. All of us who have used refrigerated bone have been impressed by the simplicity, safety and usefulness of the bone bank. However, while a bone bank on a small scale is desirable in every hospital with an active bone and joint service, there are great potentialities for further development of the bone bank. As

Dr. Wilson has pointed out, we need an organization on a much larger scale, of a community bone bank to supply the needs of surgeons for bone transplants of every size and description. This work by Dr. Bush and Dr. Garber is an important step toward that goal.

DR. FRANK E. STINCHFIELD, New York: The purpose of a bone bank is not to replace the use of autogenous bone but to serve as an adjunct in grafting when it is impossible to obtain enough bone from autogenous sources. There is definite proof, both experimentally and clinically, that autogenous bone is better than homogenous bone. It is almost impossible to do a purely homogenous bone graft since it will always be combined with autogenous bone which has been chipped at the site of the graft. The most important requisites in bone grafting are a careful preparation of the host bed and an adequate blood supply to the involved area. The problem of histopathology of bone repair is incompletely understood, but it would seem that the bone graft supplies local calcium and acts as a trellis on which the new bone is formed. It is doubtful that many—or any—of the cortical cells survive, although I believe that some of the autogenous cancellous bone cells live. It is difficult to see under the microscope the relative viability of living bone cells in the early states of repair, and the death of cells can be noted only when the lacunas are absolutely empty. The paper fairly well refutes the theory that there is incompatability of individuals in receiving homogenous bones and that the poor results are due to blood or tissue incompatability. Brooks proved that autogenous bone grafts in young dogs grow better than in older ones but that homogenous bone transplants have no relationship to the age of either donor or recipient. It is my impression from reviewing bone grafts in human beings that the best results are obtained when bone is transplanted from adult to adult rather than from youth to adult as one might expect. The problem of bone preservation is one of prime importance at the present time. The National Research Council, the Medical Department of the Veterans Administration and the United States Army are all interested in determining how to store bone at low temperatures so that it may be used at a later date. Much work has been done on the clinical application of homogenous bone from a procedural point of view, but little has been done on the basic problem of determining the physiologic and histologic processes which occur when bank bone is used. Another interesting problem would be to determine the rapidity with which the bone should be frozen and the rate at which it should be thawed out. These two factors alone might make a great deal of difference. Too, it might be advisable to take cultures of the specimens at the time of surgery and also immediately before implantation of the bone graft in the host. I am much interested in knowing how long the authors feel that bone can be stored and still used advantageously. In time of war this may be an important factor. The unfortunate publicity which has accompanied the establishment of bone banks throughout the country is disturbing. The obtaining, preservation and use of bank bone is not as simple as it sounds, and such publicity is apt to cause some disastrous results. It should be borne in mind that a bone bank is different from a blood bank, as in blood transfusions there are no regenerative powers attendant whereas in bone transplants the host must do more than just tolerate the alien tissue. My feeling is that we should proceed cautiously and not use bank bone indiscriminately until we have more definite data and a longer follow-up.

DR. D. B. PHEMISTER, Chicago: I think that it should be more definitely established by histologic studies both in experimental animals and in man whether or not the homogenous banked bone transplants form new bone which persists and takes part in the union and bony transformation of the graft. It has been reported by Marine, Lexer, Axhausen and others that in homologous transplants--some in man and others in experimental mammals--the surface cells may survive and multiply but that after ten or twelve days a foreign protein reaction against the graft develops in the host and the new tissue, which it has formed, dies. Replacement of the dead graft is then brought about by proliferation and invasion of the tissue of the host. The evidence presented here appears to be conclusive that banked homogenous bone functions satisfactorily when used as a transplant. The question to be settled is whether it acts as well as autogenous bone or only in a capacity comparable to that of boiled bone, which has also proved satisfactory in certain types of cases.

DR. LEONARD F. BUSH, Danville, Pa.: There are several points that we could have clarified in this paper had we had more time. Many of these were previously brought out in the paper presented in New York in February, 1947. It was not the purpose, or not our point, to make you think that homogenous bone is a panacea. Certainly, it is not as good as autogenous bone but it has a place, and when autogenous bone is not available, this is the second best substance. We showed definitely in the first paper that the homogenous bone did not grow. We had twelve biopsies, all of which showed dead spicules of bone with pronounced metaplasia of connective tissue cells and new bone formation, but we felt that this is somewhat in direct contrast to the autogenous grafts which some men believe grow. Certainly, some of the cells may grow, but how many and how long they grow is a subject for considerable discussion. How long can a bone be stored? I do not know. We tried to keep a constant supply available and rotate the stock and use-up the old bone first, and it seems we have a hard time getting any stock, or any deposits in the bank. But we have kept it safely for three or four months. I appreciate Dr. Stinchfield's caution to orthopedic surgeons in general, or general surgeons who are contemplating taking up the use of the bone bank. It is a very apropos remark, and I would say that we should be very careful in doing work in which homogenous bone is used, and proceed carefully. In other words, "Don't rush the bank."

ANALGESIC EFFECTS IN HUMAN SUBJECTS OF MORPHINE, MEPERIDINE AND METHADON

EUNICE M. CHRISTENSEN, M.D. and E. G. GROSS, M.D.

Iowa City, Iowa

Certain disadvantages of previously known potent analgesics have led investigators to search for new drugs which possess good analgesic properties but lack undesirable side effects. Following World War II knowledge of a new group of compounds prepared by German chemists was disclosed in a report by the United States Department of Commerce.[1] Scott and Chen [2] have recently reported pharmacologic studies of members of this series. They found one of these compounds, methadon (6-dimethylamino-4, 4-diphenyl-3-heptanone), to be outstanding. The following study deals with a comparison of the analgesic properties of this drug[3] with those of morphine and meperidine hydrochloride ("demerol hydrochloride").

The side effects and analgesic properties of methadon in combination with atropine and scopolamine were studied to determine the possible value of methadon as a premedication agent for anesthesia. Because these two agents altered the threshold effect of methadon, similar combinations were used with morphine and meperidine.

Slaughter and Munsell [4] and Floodmark and Wrammer [5] have reported that neostigmine enhanced the analgesic action of the opiates. The analgesic effects of neostigmine alone and in combination with each of the analgesic drugs were tested. Clinical studies were undertaken to evaluate methadon as a preoperative and postoperative analgesic agent.

PROCEDURE

The analgesic measurements were determined by the Wolff, Hardy, Goodell method,[6] a machine being used which was built by the Experimental Engineering Laboratories. Eleven human volunteer subjects (5 medical students and 6 staff members) were tested. They remained quietly seated during the exposure but were allowed to read or study between the readings. All subjects rested at least ten minutes before normal threshold was determined. The end point used was a sudden "welling up" of pain at the end of the three second exposure. Room temperature was maintained at approximately 24 C. Drafts and excessive humidity were avoided. The finding that normal thresholds were remarkably constant in all subjects and remained so throughout the study is in agreement with the report of Wolff, Hardy and Goodell.[6] Exposures to the light beam were made on the blackened forehead at twenty minute intervals after subcutaneous and at ten minute intervals after intravenous administration of the drugs. The subjects were not informed of the identities of the drugs they received. After some experience, however, they were able to identify each compound or combination of drugs by the side effects. At least one week elapsed between the administration of two doses of the same drug to any subject. All alterations in pain threshold are presented as percentage change from the normal threshold.

RESULTS

Laboratory Results.—Chart 1 shows a representative curve of the effect on the pain threshold of three doses of methadon administered subcutaneously to the same subject. Chart 2 demonstrates a typical set of curves of the variation in response of 7 different subjects to a 2.5 mg. subcutaneous dose of methadon. It was felt that an average curve could represent the analgesic activity of

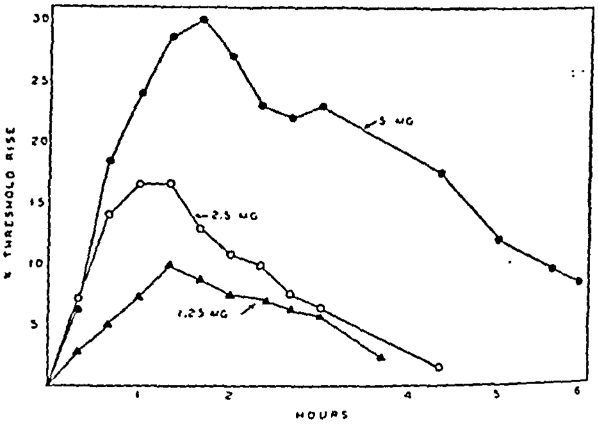

Chart 1.—Effects of subcutaneous injections of methadon on the pain threshold of 1 subject.

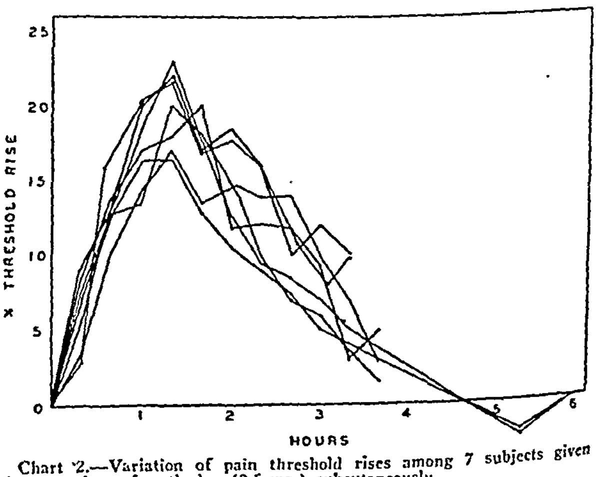

Chart 2.—Variation of pain threshold rises among 7 subjects given the same dose of methadon (2.5 mg.) subcutaneously.

Read before the Section on Anesthesiology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

From the Division of Anesthesiology and Department of Pharmacology, State University of Iowa.

[1] Kleiderer, E. C.; Rice, J. B.; Conquest, V., and Williams, J. H.: Report 981, Department of Commerce, Office of the Publication Board, Washington, D. C.

[2] (*a*) Scott, C. C., and Chen, K. K.: The Action of 1,1-Diphenyl-1-(di-Methylaminoisopropyl)-Butanone-2, a Potent Analgesia Agent, J. Pharmacol. & Exper. Therap. **87:** 63-71 (May) 1946. (*b*) Scott, C. C.; Robbins, E. B., and Chen, K. K.: Comparisons of Some New Analgesic Compounds, Science **104:** 587-588 (Dec. 20) 1946. (*c*) Scott, C. C.: Kohlstaedt, K. G., and Chen, K. K.: Comparison of the Pharmacologic Properties of Some New Analgesic Substances, Anesth. & Analg. **26:** 12-17 (Jan. Feb.) 1947.

[3] Also called "dolophine,"[2c] "amidone" and 10820 of the German series. The methadon was supplied by Abbott Laboratories, North Chicago, Ill.

[4] Slaughter, D., and Munsell, D. W.: Some New Aspects of Morphine Action Effects on Pain, J. Pharmacol. & Exper. Therap. **68:** 104-112 (Jan.) 1940.

[5] Floodmark, S., and Wrammer, T.: The Analgesic Action of Morphine Eserine and Prostigmine, Acta physiol. Scandinav. **9:** 88-96, 1945.

[6] Hardy, J. D.; Wolff, H. G., and Goodell, H.: A New Method for Measuring Pain Threshold: Observations on Spatial Summation of Pain, J. Clin. Investigation **19:** 649-657 (July) 1940.

each drug. Average threshold curves at three dose levels are presented in charts 3, 4 and 5 for each of the drugs when given subcutaneously. When the three drugs were administered intravenously a somewhat greater variation in response of the different subjects was noted. To conserve space the remaining figures will show only peak threshold rises and total duration of analgesia. The results obtained following subcutaneous and intravenous injections of all three drugs are shown in chart 6. The duration of analgesia of all three drugs following subcutaneous injection is much longer than that following an intravenous dose. Peaks of threshold rise were usually reached in eighty to ninety minutes when the agents were given subcutaneously and in fifteen to twenty minutes after an intravenous injection. These time intervals agree closely with those of other authors. Methadon appears to be approximately three times as potent as morphine and many times more potent than meperidine when given subcutaneously. This finding agrees with that of Scott and Chen.[2ac] It will be noted that the peak threshold intensity of methadon is less and of meperidine greater when given intravenously as compared to a similar dose subcutaneously. The peak intensity of morphine was about the same for either route of administration. Observations were frequently terminated when pain thresholds had returned to within a few per cent of normal. In all cases in which complete duration was followed the pain thresholds became subnormal for a period. This observation was also made by Pfeiffer and Seevers.[7]

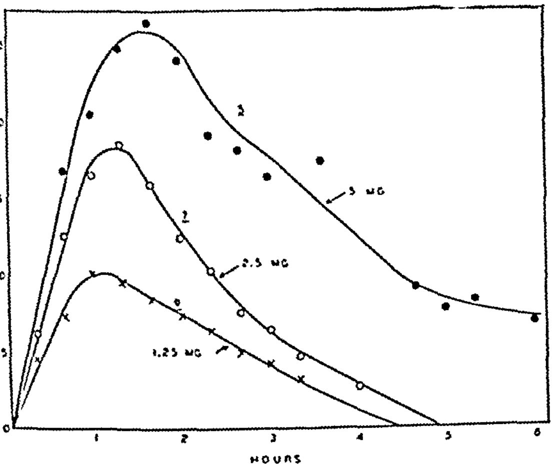

Chart 3.—Average effects on the pain threshold of varying doses of methadon injected subcutaneously. Underlined figures indicate the numbers of subjects used in obtaining the curves.

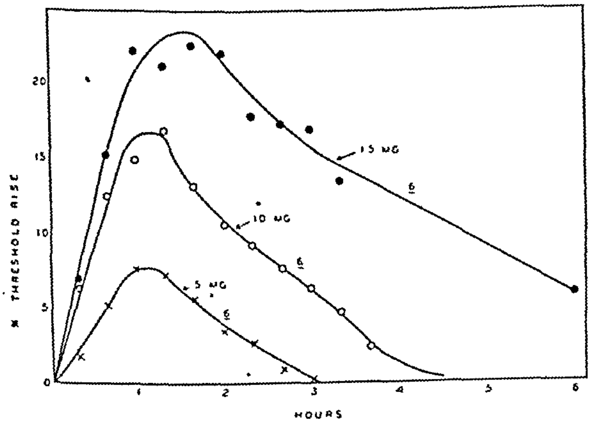

Chart 4.—Average effects on the pain threshold of varying doses of morphine sulfate injected subcutaneously. Underlined figures indicate the numbers of subjects used in obtaining the curves.

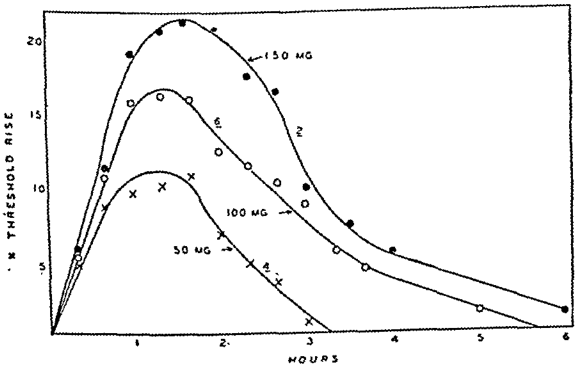

Chart 5.—Average effects on the pain threshold of varying doses of meperidine injected subcutaneously. Underlined figures indicate the numbers of subjects used in obtaining the curves.

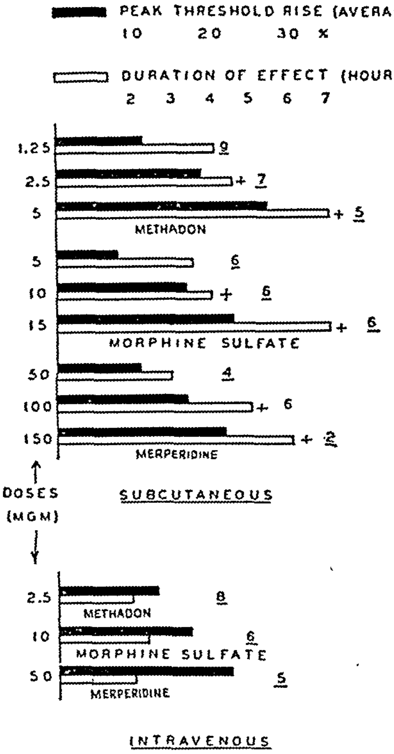

Chart 6.—Average effects on the peak threshold and duration of analgesia are represented for varying doses given subcutaneously and one dose level given intravenously of each analgesic studied.

In a few subjects, repeated doses of 1.25 mg. of methadon were administered. The second and third doses were repeated when the threshold was at or near normal. These repeated doses gave threshold rises about equal to the original rise.

Oral doses produced decided variations in both intensity and duration, and no satisfactory comparison could be made. These variations are probably due to different rates of absorption.

Methadon produced only slight sedation when given subcutaneously. On intravenous injections there was rather pronounced sedation for about the first ten minutes. In all instances the degree of sedation was less

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Seevers, M. H., and Pfeiffer, C. C.: Study of Analgesia, Subjective Depression and Euphoria Produced by Morphine, Dilaudid and Codeine in Normal Human Subject, J. Pharmacol. & Exper. Therap. 56: 166-187 (Feb.) 1936.

than that produced by either morphine or meperidine. Nausea and vomiting were not experienced by any of the subjects. No euphoria was reported by any of the subjects.

Atropine or scopolamine in a 0.3 mg. dose was injected simultaneously with each analgesic agent, because this was the usual minimum preoperative dose used clinically. The results following the subcutaneous administration of the analgesic agents in combination with 0.3 mg. of either atropine or scopolamine are shown in chart 7. It will be noted that in all instances when the combination was given subcutaneously the duration of analgesia was shortened. The peak threshold rises were less when morphine and methadon were combined with atropine or scopolamine but were not greatly altered when the drugs were used with meperidine. When atropine was given subcutaneously to two subjects one-half hour before methadon the *intensity* and duration of analgesia still remained less than when methadon was given alone. When a 0.3 mg. dose of atropine was injected intravenously forty minutes after a subcutaneous dose of methadon the intensity of the analgesia immediately began to decrease and total duration was greatly shortened from the normal effect of a similar subcutaneous dose of methadon alone (chart 8).

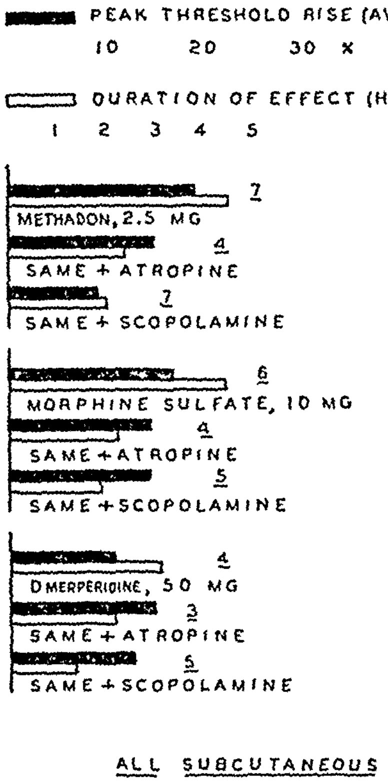

Chart 7.—Average effects of 0.3 mg. of atropine sulfate or scopolamine bromide on the peak threshold and duration of analgesia produced by the subcutaneous injection of the analgesic compounds.

When the three analgesic drugs were administered intravenously with atropine or scopolamine, the only consistent change was a shortening of duration effect of methadon (chart 9).

Undesirable side effects of morphine and meperidine such as nausea and vomiting were absent when either atropine or scopolamine was given with these two agents. The sedative action of scopolamine with these drugs appeared to be additive. The subjects who received methadon in combination with atropine or scopolamine noted only the subjective symptoms of atropine or scopolamine.

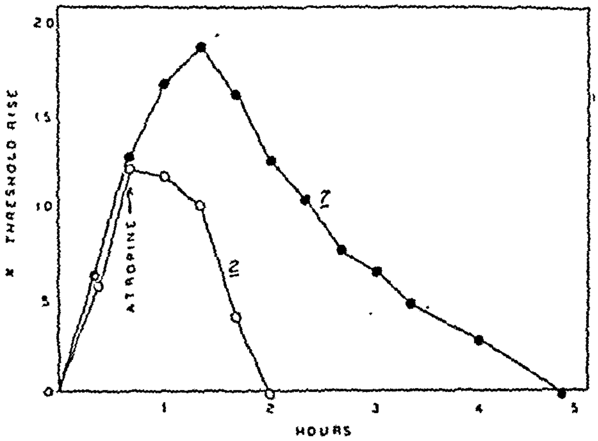

Chart 8.—Average effects on the pain threshold of 0.3 mg. atropine sulfate given intravenously forty minutes after the subcutaneous injection of 2.5 mg. of methadon.

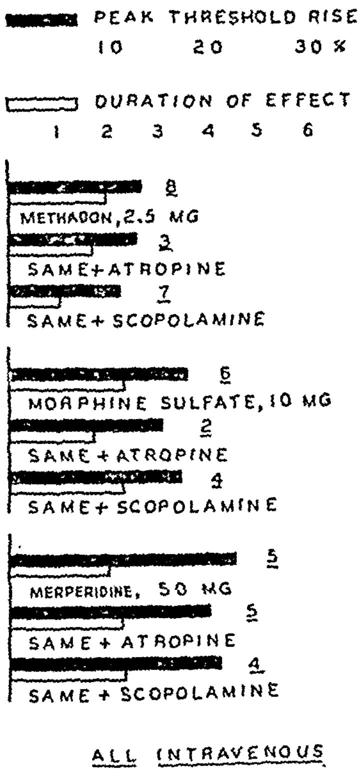

Chart 9.—Average effects of 0.3 mg. of atropine sulfate or scopolamine bromide on the peak threshold and duration of *analgesia* produced by the intravenous injection of the analgesic compounds.

Atropine or scopolamine in 0.3 mg. subcutaneous or intravenous doses did not alter the pain threshold of three subjects.

Chart 10 represents the increased threshold effect when 0.5 mg. neostigmine was injected either subcutaneously or intravenously with each analgesic drug and when administered alone. The combinations with neostigmine produced greater sedation than did the three analgesics alone. These findings confirm the results of Slaughter and Munsell with the opiates.[4] Contrary to the findings of Slaughter and Munsell [4] but confirming the results of Floodmark and Wrammer[5] it was found that neostigmine produced considerable rise in pain threshold when it was administered alone.

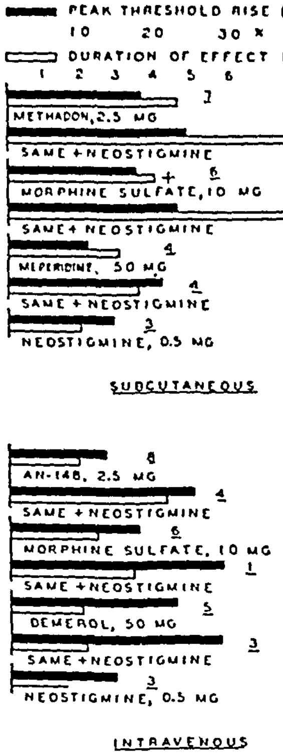

Chart 10.—Average effects of 0.5 mg. of neostigmine sulfate on the peak threshold and duration of analgesia produced by the analgesic compounds.

Clinical Results.—Sixty-nine patients, 37 female and 32 male, received methadon as a preanesthetic agent. Their ages ranged from 14 to 77 years. All received 5 mg. of methadon combined with either 0.3 or 0.4 mg. of scopolamine. The majority of the patients received the combination intravenously. In addition 0.06 to 0.2 Gm. of sodium pentobarbital was given to all patients before spinal, regional or local anesthesia.

The anesthetic agents are shown in table 1.

TABLE 1.—*Anesthetic Agent*

Cyclopropane	15
Nitrous Oxide	40
Ethylene	6
Ether	1
Spinal	3
Caudal	2
Intercostal block	1
Field block	1

Administration of methadon, 5 mg., was repeated on an average of once during each operation of over one and a half hours when the anesthetic agent was nitrous oxide.

The majority of the patients who received nitrous oxide had abdominal surgical treatment. As all patients in this group were intubated under intravenous barbiturate and curare, no evaluation of methadon during the induction period was attempted. However, these patients did require larger amounts of "pentothal sodium" for sedation and curare for relaxation than did the control patients premedicated with morphine and scopolamine.

Most of the subjects who received cyclopropane had no prolongation of the induction period. They had as smooth an anesthetic course and as good relaxation as did those premedicated with morphine. All persons premedicated with methadon except those who received a large amount of "pentothal sodium" during surgical treatment were awake and alert when they left the operating room. Most of the subjects premedicated with methadon and scopolamine who had spinal or local anesthesia were apprehensive throughout the operation. It appears that this agent does not produce sufficient sedation for this type of anesthesia. This observation agrees with that of Scott, Livingstone and others.[8]

TABLE 2.—*Undesirable Effects*

	Cases
Difficult to maintain in anesthesia	5
Excitement stage	2
Apprehension	3
Induction time prolonged	3
Respiratory depression	4
Blood pressure rise	1

Table 3 shows the postoperative course. Except for 8 patients who received morphine routinely postoperatively, no patient was given an analgesic until he complained of pain. Forty-four of the remaining 61 persons experienced no pain the first twenty-four hours. Four subjects received only partial relief from pain or were classed as dissatisfied. These received 5 mg. every four hours. One of these was an alcoholic addict, and 1 was a known addict who demanded morphine after two doses of methadon because she received "no kick from the shot." One highly emotional person enjoyed the euphoria from opiates and demanded dihydromorphinone hydrochloride: The other patient was only partially relieved by two doses of methadon intramuscularly after a vaginal plastic operation.

TABLE 3.—*Postoperative Course*

	Cases
Nausea	1
Nausea and vomiting	1
Respiratory or circulatory depression	0
Atalectasis	0
Medication (analgesic) methadon, 5 mg.	
1 dose	10
2 doses	5
3 doses	2
Unsatisfactory	4
No medication (analgesia) first 12 hours	44
Morphine sulfate by error	8
Restlessness relieved by methadon	1
Addict	
1—on methadon	
1—not relieved	
Deaths	
Superior vena cava cut during operation; cerebral anoxia	1

Eleven additional patients received methadon either orally or intramuscularly for pain from various causes including cancer, tic douloureux, peripheral vascular disease pain, migraine, other headaches and arthritis. Doses varied from 2.5 to 5 mg. every three to four hours. Six obtained complete relief from pain; 1, an arthritic received no relief with one dose of 2.5 mg. and refused to repeat it. Two had previously received morphine in 10 and 15 mg. doses every four hours from one to two months with complete relief from pain. Methadon was abruptly substituted. Both complained that the "shots had no kick." After twenty-four hours both became satisfied and received complete relief from pain from 5 mg. intramuscularly four to five times a day. Two patients with cancer who were only partially relieved of pain by large doses of morphine and meperidine were also not completely relieved by 5 to 10 mg. of methadon. A combination of 5 mg. methadon and 0.5 mg. neostigmine afforded 1 of these patients longer relief from pain. The 1 person who was nauseated from 2.5 mg. methadon was also nauseated after an injection of isotonic solution of sodium chloride. Euphoria was noted by 1 subject.

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[8] Scott, W. W.; Livingstone, H. M.; Jacoby, J. J., and Broberg, G. G.: Early Clinical Experience with Dolophine (No. 10820), Anesth. & Analg **26:** 18-20 (Jan.-Feb.) 1947.

The best analgesia was obtained in cases of postoperative pain. This agrees with the conclusion of Scott, Chen and Kohlstaedt[2c] and Scott, Livingstone and others.[8]

COMMENT

The fact that intensity and duration of the analgesic action of methadon were markedly shortened by atropine or scopolamine helps explain why methadon was frequently an unsatisfactory premedication agent. This combination of drugs lacked both analgesic and satisfactory sedative properties.

Small doses of methadon afforded good analgesia clinically. Methadon seemed most useful for postoperative pain and for relief of pain from many other causes. Combined with neostigmine it should afford even greater relief for patients who have severe pain.

SUMMARY

Methadon is an analgesic agent three times as potent as morphine and many times more potent than meperidine. It lacks sedative properties. Undesirable side effects are minimal. It may be administered intravenously for analgesia of rapid onset and short duration or subcutaneously for slower onset and longer analgesic action.

Therapeutic subcutaneous doses of atropine or scopolamine decreased both intensity and duration of the analgesic effects of methadon and morphine as measured by determination of pain threshold. The duration but not the intensity of the analgesic action of meperidine was shortened.

When the analgesic drugs were administered intravenously with atropine or scopolamine, the only consistent change was a shortening of duration effect of methadon.

Atropine and scopolamine produced no analgesia as measured by determinations of pain threshold.

Undesirable side effects of morphine and meperidine were less noticeable when atropine or scopolamine was added. Subjects were more sedated when scopolamine was injected with each analgesic.

Neostigmine increased both intensity and duration of the analgesic action of morphine, meperidine and methadon as measured by determination of pain thresholds.

Premedication agents should be selected for sedative effects rather than for their analgesic actions. Methadon is most useful as an analgesic in postoperative subjects and in cases of pain from many other causes.

Pain threshold studies of 11 subjects were made by the Wolff, Hardy, Goodell technic. Eighty clinical cases are reported.

ABSTRACT OF DISCUSSION

Dr. Leo V. Hand, Boston: Dr. Christensen's laboratory findings substantiate those of other investigators as to comparative effects on threshold and duration with morphine, meperidine and methadon. Methadon has three times the potency of morphine and approximately thirty times the potency of meperidine. Like meperidine, there is an absence of nausea and vomiting. As to side effects, there seems to be a difference of opinion. Dr. Christensen reports only a slight sedative effect when the drug is administered subcutaneously and no other undesirable side actions. Other investigators report a 50 per cent incidence of lightheadedness or dizziness, but not true vertigo. Also, they report that when large doses are used there is not only respiratory depression but also circulatory changes: fall in blood pressure levels and, in particular, changes in rate and pronounced bradycardia. Forty patients of the 69 had nitrous oxide anesthesia. The majority of these 40 patients had abdominal surgical treatment. These patients who were to have abdominal surgical treatment under nitrous oxide required heavy doses of "pentothal" for intubation and curare for relaxation. If one were to eliminate this group in which nitrous oxide plus "pentothal" was given, one would eliminate approximately 50 to 57 per cent of the patients from evaluation of preanesthetic medication studies, as well as an appreciable period of postoperative medication studies. An opiate or its counterpart should not be used for strictly sedative purposes; the barbituric acid derivatives are more effective. I do not believe that premedication influences an anesthetic course or relaxation of the patient. It is the important factor in a smooth induction. Relaxation is dependent entirely on the administrator and type and quantity of agent administered. How many of these surgical procedures in these 69 patients might be classified as major procedures usually accompanied by two or more days of moderate to severe postoperative pain? Our results on the efficacy of morphine plus neostigmine do not approach those of Dr. Christensen with methadon. She reports that 44 of 61 patients experienced no pain the first postoperative day. In our statistics on 400 patients, we found that patients who received morphine plus neostigmine required an average total dose of 30 mg. of morphine for the first twenty-four hours and 20 mg. of morphine for the second twenty-four hour period. Of the patients receiving morphine alone, the average total dose was 50 mg. the first twenty-four hours and 30 mg. the second twenty-four hours.

Dr. Benjamin H. Robbins, Nashville, Tenn.: From data presented in charts 1, 3, 4 and 5, the degree of analgesia produced by 5, 15 and 150 mg. of methadon, morphine and meperidine, respectively, is about the same. These data place methadon as about three times as active as morphine, which is greater than other reports (Kirchhof, A. C., and David, N. A.: Clinical Trial of a New Synthetic Heptonone Analgesic [Dolophine]: Preliminary Report, West. J. Surg. 55: 183-186 [March] 1947) and our own observations indicate. Our experience with methadon has shown that it may be substituted for morphine or meperidine in a great variety of uses. For preanesthetic medication doses of 7.5 mg. combined with atropine, gave good effects. A smaller dose is not as satisfactory as 10 mg. of morphine. For postoperative pain, a dose of 5 or 7.5 mg. every six hours has been satisfactory in all cases except 2. It has given good relief after gastrectomy, sympathectomy, lobectomy, pneumonectomy, thoracoplasty and less extensive procedures. It controls pain in coronary occlusion and acute rheumatic pericarditis, but the dose has to be increased and repeated more frequently. Three patients who showed sensitivity reactions to opiates, tolerated methadon well. Three patients addicted to morphine, taking 0.250 to 0.6 Gm. daily, were changed to methadon, 7.5 to 10 mg. every four to six hours, without discomfort, and in 2 of these the methadon was gradually withdrawn in five to six days without the development of abstinence signs or symptoms. One meperidine addict, using 30 to 40 cc. per day, 1.5 to 2.25 Gm., was changed to methadon, 20 mg. six times daily for three days, and now is down to two doses daily without signs of meperidine abstinence. These experiences agree with those reported by Isbell and others (Isbell, H.; Walker, A.; Eisenman, A. J., and Frank, K.: Effect of Single Doses of 10820 [4-4 Diphenyl—6-Dimethylamine-Heptonone-3] on Man, Federation Proc. 6: 341 [March] 1947). Reports from the First United States Narcotic Farm indicate that regular and repeated use of methadon may lead to addiction. Psychic effects of methadon are less than with morphine and evidence of physical dependence is less, so it is possible that this substance may not be a true addictive drug. If experience shows that methadon, unlike morphine or meperidine, is free of addiction liabilities, this new substance will be the greatest addition to that list of pain-relieving drugs since the introduction of morphine or its precursor, opium.

Dr. John S. Lundy, Rochester, Minn.: My associates and I have 1 patient who has some euphoria from methadon. He is a physician who has suddenly contracted rheumatoid arthritis and has acute attacks. He gets complete relief with this substance but he gets euphoria from it. He gets no thrill from meperidine or morphine. We have had unfortunate experiences with meperidine. It can be the worst addictive drug that we have used. It is only in rare instances that it is so addictive, but for those persons to whom it gives euphoria it does something for which they would never give it up for anything in this world. We have had several patients now who have come in addicted to morphine and we have started them on methadon. For the first two or three days they say it gives relief from the pain but does not give them any thrill So far, however, we have had no trouble taking patients off morphine and using methadon. In order to be sure that this is a pain-relieving drug, we have tried it now in a number of cases in which spinal anesthesia has worn off before a hernia operation was completed and we have been able to get fifteen minutes of relief from pain for each 10 mg. given intravenously, for even as many as three doses in order that an operation might be completed. I think that is a definite test for pain relief. There are many things about this drug that are interesting. We gave one man, after a Smithwick operation when he suffered tremendous amount of pain, 28 mg. every four hours for six days, and he finally experienced an over-dose. He looked extremely ill, and the question of damage to the liver came up. All of the tests for damage to the liver that are done in our institution were applied and appeared to be normal as far as liver function was concerned. Our series is not large—I think perhaps 175 cases—but we feel that this drug has potential virtue.

Dr. Eunice Christensen, Iowa City, Iowa: The subjects who took 2.5 and 5.0 mg. doses of methadon in the laboratory for investigative purposes experienced some dizziness and lightheadedness occasionally after subcutaneous injection, and more frequently for a few minutes after the doses were given intravenously. Respiration rates and blood pressure were checked before and every fifteen to twenty minutes after administration of 1.25 to 5.0 mg. doses of methadon for the duration of analgesia. No significant changes were noted. The majority of the patients who had nitrous oxide anesthesia had bowel or gastric resections, laminectomies, operations on the chest, etc.—procedures after which pain might be expected. The patients in the nitrous oxide group who were premedicated with methadon probably needed more "pentothal" than those who received morphine preoperatively because methadon lacked sedative properties. Our series of clinical cases is small. Possibly after we have given methadon to a larger group, we, too, may feel that greater doses are needed in certain cases relieved only partially by 2.5 or 5.0 mg. of methadon. Dr. Robbins asked the reason for the increased pain threshold and duration effect when neostigmine was given with the analgesic agent. We believe this was a summation effect. We do not know why atropine and scopolamine shortened the analgesic effect of the three drugs. That problem is now being studied. Our clinical patient who noted euphoria after methadon did not experience it from morphine or meperidine. One of the laboratory subjects for the pain threshold tests had pronounced euphoria after both meperidine and morphine injections. He disliked methadon because it didn't give him a "kick."

Ascites.—There are three important physiopathologic states which lead to the formation of ascites. The first and most frequently observed one is cirrhosis of the liver. The second cause is the implantation of a malignant neoplasm of the peritoneum usually secondary to carcinoma of the gastrointestinal tract or the ovary, but occasionally the neoplasm is primary such as a mesothelioma. Thirdly, cirrhosis of the liver due to repeated and long-standing congestive heart failure may lead to ascites.—Lord, J. W., Jr., from an address given April 29 at the Clinical Research Meeting of the New York Academy of Medicine, New York.

FATAL TOXIC ENCEPHALOPATHY APPARENTLY CAUSED BY STREPTOMYCIN

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Few fatal complications of streptomycin therapy have been reported in the medical literature.[1] However, it is well recognized that streptomycin produces dysfunction of the eighth cranial nerve in man [2] and that its administration is sometimes followed by symptoms which are best explained by the assumption that temporary damage to nervous or vascular tissue has occurred. Thus, paresthesias of the hands, the tongue and the circumoral region are not uncommon.[3] Furthermore, there is on record at least one report of convulsions having occurred during the administration of streptomycin intravenously.[4] We have recently witnessed a case of fatal encephalopathy which we believe was caused by streptomycin. The observations may throw some light on the nature of the nervous manifestations of streptomycin intoxication and on the relation of renal function to blood levels of the drug.

REPORT OF CASE

The patient was a white married woman aged 25. She had had diabetes since the age of 6, but had controlled it adequately by the use of diet and insulin.

Her present illness began in April 1946, when albuminuria and pyuria were detected by an obstetrician, in the second month of pregnancy. The pregnancy was terminated and the fallopian tubes ligated in June 1946, after the pyelonephritis had persisted and poor renal function had been demonstrated. Postoperatively a wound infection appeared and drained for several weeks. During this time she suffered from intermittent lumbar pain and fever, which recurred after her discharge from the hospital, necessitating her readmission. A third admission, for ten days, was required for another exacerbation of the infection of the urinary tract. Penicillin and sulfonamide compound were administered during each of these hospitalizations.

During the two month interval between her third and fourth (last) admissions, she suffered from frequent lumbar pain and from crops of small furuncles. She lost 28 pounds (12.7 Kg.) in weight.

On her final admission,[5] Oct. 4, 1946, physical examination showed a well developed but thin and pale young woman, not in acute distress. The temperature was 99.4 F., the pulse rate 120, the respirations 24 and the blood pressure 140 systolic and 90 diastolic. An acneiform pustular eruption was noted over the face and upper anterior part of the chest. The ocular fundi were normal, and abnormalities were not noted in the heart and lungs. Tenderness was noted in both costovertebral angles and in both lower quadrants of the abdomen, but no masses or organs were palpated. Pelvic examination was not done.

The laboratory findings on admission were as follows: The red blood cell count was 3,300,000; hemoglobin, 8.7 Gm.; white blood cell count, 19,000; differential count: stab forms 7 per cent, polymorphonuclear leukocytes 82 per cent, lymphocytes 10 per cent and monocytes 1 per cent. Urine: The specific gravity was 1.015; albumin, 4 plus; sugar, 4 plus; acetone, absent; microscopic examination: there were many white blood

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From the Department of Medicine of the Bethesda Hospital and the Department of Internal Medicine, College of Medicine, University of Cincinnati.

[1] McDermott, W.: The Toxicity of Streptomycin, Am. J. Med. **2:** 491-500 (May) 1947.

[2] Brown, H. A., and Hinshaw, C.: Toxic Reaction to Streptomycin on the Eighth Nerve Apparatus, Proc. Staff Meet., Mayo Clin. **21:** 347-352 (Sept. 4) 1946.

[3] Streptomycin in the Treatment of Infections: A Report of One Thousand Cases, Committee on Chemotherapeutics and Other Agents National Research Council, J. A. M. A. **132:** 70-77 (Sept. 14) 1946.

[4] Finland, M.; Murray, R.; Harris, H. W.; Kilham, L., and Meads, M.: Development of Streptomycin Resistance During Treatment, J. A. M. A. **132:** 16-21 (Sept. 7) 1946.

[5] The three previous admissions were to hospitals other than that of the final admission.

cells in clumps and red blood cells, but no casts. Blood sugar was 580 mg. per hundred cubic centimeters, the carbon dioxide-combining power 48 volumes per cent and the urea nitrogen 47 mg. per hundred cubic centimeters. A hemolytic Staphylococcus aureus was isolated from the urine and from a pustule on the forehead.

Course in Hospital.—The initial period in the hospital was characterized by fever, pyuria and costovertebral pain. The patient presented several problems in management, in addition to the active pyelonephritis. The diabetes was difficult to stabilize because of variations in food and fluid intake related to situations of emotional stress. By means of a diet high in carbohydrates and parenteral supplementation of fluids and dextrose, together with 10 to 40 units of regular insulin and 20 to 40 units of protamine zinc insulin a day, the diabetes was fairly well controlled. At no time did ketosis develop. The blood urea nitrogen level, which was initially 47 mg. per hundred cubic centimeters, slowly fell to normal after nine days of forced fluids, the delayed fall indicating a pronounced restriction of renal function.

The patient received 240,000 units of penicillin daily for the first four days and then 600,000 units daily for the next six days. At this time she was afebrile, but manifestations of active pyelonephritis continued and the urine culture remained positive for staphylococci. The furuncles did not heal. Because of the persistence of white blood cells and staphylococci in the urine, the sensitivity of the micro-organisms to penicillin and streptomycin was tested. Serial dilution technics were employed, the streptomycin tests in tryptone broth, and the penicillin tests in yeast beef broth. The results are shown in table 1.

Table 1.—*Sensitivity of Staphylococci to Penicillin and Streptomycin*

	Penicillin, Oxford Units/Cc. Required to Inhibit Growth	Streptomycin, Micrograms/Cc. Required to Inhibit Growth
Staphylococcus from boil..........	0.4	1.5
Staphylococcus from urine.........	>25	1.5

Because of the resistance of the organism in the urine to penicillin and its sensitivity to streptomycin, penicillin was discontinued and streptomycin was started in doses of 400 mg. every three hours, on the eleventh hospital day. Within two days the pus had disappeared from the urine and the urine culture was negative. At this time the patient presented no complaints or problems, and was able to be up and about. A new batch of streptomycin was started on the third day of treatment. That day she complained of headache. On the fourth day of treatment, she noticed paresthesias of the face (circumoral), tongue and fingers.

On the fifth day, while talking to her husband, she suddenly became disoriented and began to exhibit athetoid and choreiform movements of the head and all extremities. Streptomycin was discontinued; the total dose had been 15.6 Gm. in five days. The temperature, pulse, respirations and blood pressure at that time were normal. The blood urea nitrogen was 21 mg. per hundred cubic centimeters, the blood sugar 320 mg. per hundred cubic centimeters, the carbon dioxide-combining power 50 volumes per cent and the cerebrospinal fluid normal as to pressure, cytology and protein content. The temperature rose rapidly to 106 F.; the pulse rate reached 128. The respirations gradually became faster, being 40 per minute until Cheyne-Stokes breathing began. The blood pressure, which was normal at the onset of the toxic reaction, rose to 195 systolic and 125 diastolic several hours before death. The patient lapsed into a coma, suffered numerous generalized convulsions, and died at 6:25 p. m., Oct. 21, 1946.

The level of streptomycin in the serum and urine was determined at frequent intervals, and that of cerebrospinal fluid once, by a modification of the method of Price, Nielsen and Welch.[6] The results are presented in table 2.

Table 2.—*Levels of Streptomycin in Serum, Urine and Spinal Fluid, Micrograms per Cubic Centimeter*

Date, 1946	Blood	Urine	Cerebrospinal Fluid
October 15..........................	256	160	..
October 16..........................	256	320	..
October 17..........................	256	160	..
October 19..........................	Streptomycin discontinued		..
October 20..........................	50	...	25
October 21..........................	25	...	..

The clinical diagnoses were juvenile diabetes mellitus, diabetic vascular disease, acute and chronic pyelonephritis, abscesses (Staphylococcus) of kidneys and skin, and terminal toxic encephalopathy due to streptomycin.

An autopsy was performed five hours post mortem by Dr. Edward A. Gall.[7] The significant findings were confined to the peritoneal cavity, the pancreas, the kidneys and the brain, which are described in the following paragraphs. All other organs were normal.

Peritoneal Cavity.—There was no free fluid. The omentum and loops of the ileum were bound in the lower part of the abdomen to the right posterolateral surface of the uterus and to the under surface of the abdominal scar. Blunt dissection in this region revealed a multiloculated abscess cavity proceeding from the right adnexa and containing approximately 30 cc. of creamy, yellowish odorless pus. Culture of this showed hemolytic Staph. aureus. This cavity was well walled off, and the posterior surface of the bladder was adherent to it by fibrinous strands.

Pancreas.—Gross Examination: This organ was decidedly atrophied, comprising only about one-fourth its normal bulk. There was considerable fibrosis, but lobulation was retained. The parenchymatous components were markedly attenuated.

Microscopic Examination: Despite the gross impression of atrophy, abundant parenchyma persisted. There were, however, only rare islets, and these showed much attenuation.

Kidneys—Gross Examination: The kidneys weighed together 220 Gm., and were roughly symmetric. There was moderate edema of the perirenal fat which adhered unduly to the true capsule. The latter stripped with ease and revealed an irregular mottled yellowish red surface. On section there were several cortical cystic abscesses measuring up to 0.8 cm., containing yellowish gray purulent fluid. The cortex was narrowed to 3 mm., and there were many minute bright yellow foci of necrosis with streaklike appearance. These were distributed predominantly among the pyramids, and several of the latter showed frank dissociation. The pelves were not dilated, nor was the mucosa significantly injected.

Microscopic Examination: All sections showed a severe degree of pyelonephritis of chronic character with focal tubular atrophy, interstitial inflammation and glomerular hyalinization. Many large vessels exhibited considerable arteriosclerosis. Where not atrophied the majority of the proximal tubules showed swollen, vacuolated and granular cytoplasm. The lumens were obtruded on and the picture was that of hydropic swelling. Glomeruli exhibited considerable intercapillary sclerosis, and a few contained "hyalin ball-like deposits." A peculiar autolytic necrosis of several pyramids was noted, and in these there appeared to be some calcification. The pelvic mucosa elsewhere showed chronic inflammation and edema.

Brain—Gross Examination: The brain, except for a slight flattening of the gyri, was grossly normal. The vessels at the base were thin walled and normally distributed. Coronal sections through both hemispheres revealed a moderate degree of swelling of the white matter and a diffuse congestion, especially pronounced throughout the cortical gray substance (fig. 1).

Microscopic Examination: Survey sections were taken from various regions of the gray and white matter of both hemispheres, from the hypothalamus and the medulla. The microscopic examination disclosed two principal types of changes: (1) vascular alterations and (2) lesions of the nervous tissue proper.

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[6] Price, C. W.; Nielsen, J. K., and Welch, H.: The Estimation of Streptomycin in Body Fluids, Science 103: 56-57 (Jan. 11) 1946.

[7] Pathologist, Bethesda Hospital.

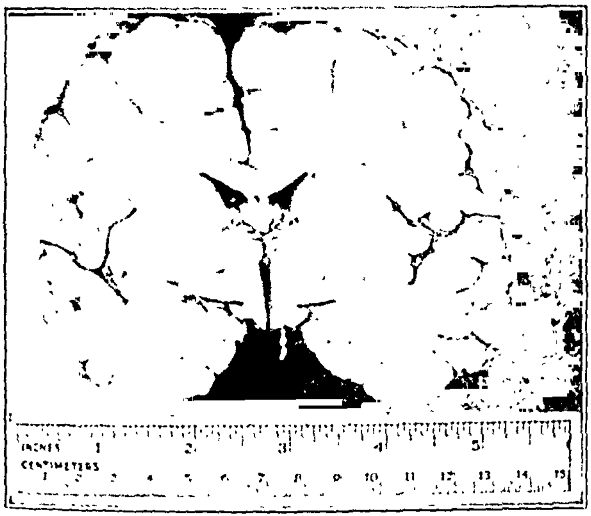

Fig. 1.—Coronal section through both hemispheres at the level of the optic chiasm. Note the enlargement of the white matter of both hemispheres associated with compression of the lateral ventricles.

The vascular changes were of uniform character, varying only in degree, and were confined chiefly to the cerebral white matter, basal ganglions and medulla. The changes consisted of a tremendous distention of the smaller veins and capillaries and of signs of stasis and vasoparalysis (fig. 2). Some of the perivascular spaces appeared distended and harbored serous fluid, extravasated red blood cells and macrophages. Some of the veins showed signs of beginning vessel wall necrosis.

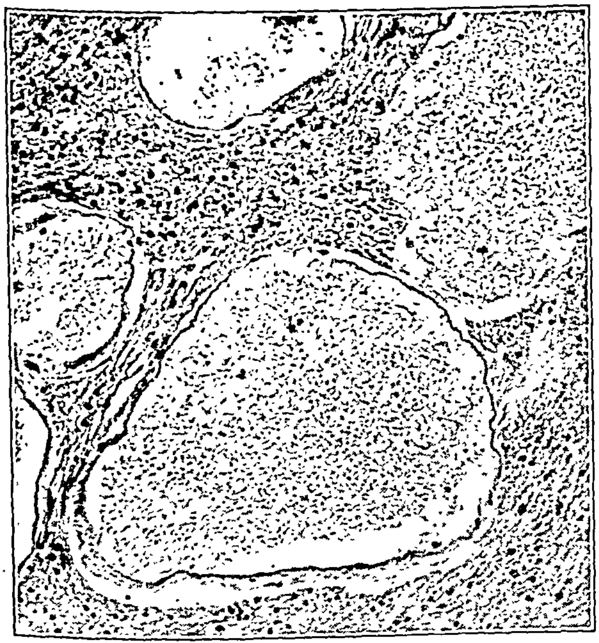

Fig. 2.—Vascular alterations of the medulla. Note the tremendous distention of the capillaries. Hematoxylin eosin stain; × 260.

The lesions of the nervous tissue proper consisted of small focal areas of rarefaction and necrosis; early stage of swelling of the white matter; ischemic degeneration of some of the nerve cells, especially pronounced in the areas adjacent to the distended blood vessels. The cytoplasm of some of the nerve cells contained brownish hematogenous pigment.

Sections taken from the hypothalamus disclosed a few petechial hemorrhages involving the nucleus paraventricularis and the nucleus supraopticus. The neuronal elements, however, appeared only slightly damaged.

In sections taken from the medulla there were numerous distended capillaries and veins with changes characteristic of vasoparalysis. In addition, there were a few focal areas of tissue rarefaction in which some of the nerve cells displayed signs of a far advanced ischemic degeneration.

The cranial nerves, including the eighth nerve, did not reveal any pathologic abnormalities.

The leptomeninges were moderately distended and harbored a few red blood cells and macrophages.

The final neuropathologic diagnoses were: functional vascular disturbances of the white matter; medulla and basal ganglions characteristic of vasoparalysis, associated with secondary cerebral swelling and ischemic alterations of the nerve cells of the nuclei and of the cortical gray matter; petechial hemorrhages in the paraventricular and supraoptic nuclei of the hypothalamus.

Summary on the Lesions of the Central Nervous System and General Comment.—The most striking changes consisted of vascular alterations described as central vasoparalysis.[8] Vascular changes of the same type have been observed repeatedly in cases of brain injury[9] in arsphenamine encephalopathy[10] and other toxic encephalopathies.

There is little doubt that the described alterations of the nervous tissue are secondary to the vascular changes. Whereas in the other examples of central vasoparalysis[11] the circulatory disturbances were chiefly confined to the white matter, in the present case the vascular changes were also found in the hypothalamus, basal ganglions and the medulla. It is conceivable that the involvement of the medulla contributed to the rapid fatal outcome of the present case.

The final pathologic diagnoses were: (1) functional vascular disturbances of the white matter, medulla (early stage of vasoparalysis) and basal ganglious with secondary cerebral swelling and ischemic alterations of the nerve cells of the nuclei and of the cortical gray matter; petechial hemorrhages in the paraventricular and supraoptic nuclei of the hypothalamus; (2) pyelonephritis, acute and chronic with formation of miliary abscesses and acute necrotizing papillitis; (3) intercapillary glomerulosclerosis; (4) nephritis, chronic vascular, severe; (5) toxic nephrosis, with hydropic degeneration of renal tubules, and (6) acute suppurative salpingo-oophoritis with abscess formation on the right side.

COMMENT

It seemed probable that the events leading to the death of this young woman represented an encephalopathy caused by streptomycin, the symptoms of which appeared with dramatic suddenness on the fifth day of treatment. Three days later the patient was dead. The clinical picture was not that of uremia, diabetic ketosis or insulin shock, and the laboratory studies did not reveal changes characteristic of these conditions. Furthermore, the patient's course up to the time of development of the encephalopathy had been one of improvement, both of the staphylococcic infection of the kidneys and skin and in the stability of the diabetes. The cutaneous lesions were healing, the temperature had subsided, the urine culture had become negative, and the pyuria had diminished. In the face of this general clinical improvement, the sudden appearance of choreiform movements, respiratory irregularities, hyperpyrexia and hypertension suggested the presence of a lesion in the brain stem and the hypothalamus. This clinical impression was largely corroborated by the postmortem examination of the brain. There is little possibility that the toxic reaction could have been caused by drugs other than streptomycin, for all other therapy was discontinued at the time that streptomycin was administered.

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[8] Scheinker, I. M.: Vasoparalysis of Central Nervous System, a Characteristic Vascular Syndrome; Significance in the Pathology of the Central Nervous System, Arch. Neurol. & Psychiat. 52:43-56 (July) 1944.

[9] Scheinker, I. M.: Neuropathology in Its Clinicopathologic Aspects, Springfield, Ill., Charles C Thomas, Publisher, 1947.

[10] Scheinker, I. M.: Genesis of Encephalopathy Due to Arsphenamine (Central Vasoparalysis Due to Arsphenamine), Arch. Path. 37:91-98 (Feb.) 1944.

[11] Footnotes 8, 9 and 10.

The tremendous distention of the veins of the medulla and the small focal necroses in the nerve tissue of the medulla itself point strongly to the action of an exogenous poison which probably damaged vital centers. Furthermore, the involvement of the cortex and the basal ganglions provides an explanation of the choreiform and athetoid movements which ushered in the encephalopathy. Finally, lesions were found in the hypothalamus which may have been the cause of the hyperthermia from which the patient suffered during the last two days of her life.

The levels of streptomycin in this patient's serum were higher than any which have been recorded in our laboratory, namely 256 micrograms per cubic centimeter. Though even higher blood levels have been noted by others[12] without the appearance of cerebral symptoms, comparisons between various laboratories of levels determined by biologic methods are not strictly applicable. Cerebrospinal fluid from our patient was not examined during the administration of streptomycin, but a specimen obtained twenty-four hours after the drug was discontinued contained 25 micrograms per cubic centimeter, or 50 per cent of the blood level at that time. An assay of tissue from the brain performed by Dr. Joseph Tamura revealed no streptomycin. The significance of this finding is not clear. The explanation for the unusually high levels of streptomycin in the blood would appear to lie in the pronounced limitation of renal function which this patient exhibited clinically and indicates the necessity for the careful regulation of dosage in patients with restricted renal function.

The possibility exists that the encephalopathy may have been caused by impurities in the second batch of streptomycin, following administration of which the reaction occurred. However, the facts that central nervous lesions, particularly those involving the function of the eighth nerve, are recognized complications of the administration of streptomycin and that usually high levels of streptomycin were observed in this case suggest that the cerebral lesions were caused specifically by streptomycin.

SUMMARY

A case of fatal toxic encephalopathy, believed to be due to streptomycin, is reported. The reaction consisted of the sudden appearance of disorientation and choreiform and athetoid movements on the fifth day of treatment. These gave way to generalized convulsions, which were accompanied by rapidly appearing hyperpyrexia, tachycardia, arterial hypertension and Cheyne-Stokes respiration. Usually high levels of streptomycin were found in the blood and cerebrospinal fluid, apparently because of poor renal clearance of the drug. The presence of lesions in the brain proper suggest that the nervous manifestations of streptomycin intoxication in this case were central in origin.

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[12] Finland and others.[4] Buggs, C. W.; Pilling, M. A.; Bronstein, B., and Hirshfield, J. W.: The Absorption, Distribution and Excretion of Streptomycin in Man, J. Clin. Investigation 25:94-102 (Jan.) 1946.

Testosterone is essential for the growth and maintenance of the entire genital system apart from the interstitial cells themselves. This probably includes the tubules. It certainly includes the vas deferens, prostate, seminal vesicles, accessory urethral glands, penis and scrotum.—McCullagh, E. Perry, Bulletin of the New York Academy of Medicine, June 1948.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following reports. Howard A. Carter, *Secretary.*

MEDIQUARTZ GERMICIDIAL ULTRAVIOLET LAMP ACCEPTABLE

Manufacturer: Medical Quartz Products Company, Subsidiary of Dallons Laboratories, 5066 Santa Monica Boulevard, Los Angeles 27.

The Mediquartz Germicidal Ultraviolet Lamp, Model 900, is a device designed to be attached to walls or ceilings and to disseminate ultraviolet radiation over large areas. It is intended for the control of air-borne bacteria and consists of a cold cathode gaseous discharge tube of a new design. The lamp has a tube of special ultraviolet-transmitting glass 16 mm. in diameter and with an exposed length of about 213 cm. When operated on a line voltage of 110, the lamp consumed 44 watts. At a distance of 12 mm. from the face of the lamp the ultraviolet energy of the lamp in microwatts per square centimeter was found to be 4,500. The intensity of radiation at a distance of 1 meter from the plane of the tube was 64 microwatts per square centimeter. The spectral distribution of the energy between 2483 and 3200 angstroms was as follows:

87 per cent between 2,483 and 2,600 angstroms
11 per cent between 2,600 and 3,000 angstroms
2 per cent between 3,000 and 3,200 angstroms

No lines below 2,482.7 angstroms were detectable; thus, the lamp meets the requirements for acceptance of disinfecting lamps. The Council accepts ultraviolet lamps for disinfecting purposes for use in hospitals, nurseries and operating rooms where the population can be controlled and where the lamps can be expected to reduce the probability of infection by air-borne bacteria. They are not acceptable for use in waiting rooms, school rooms, auditoriums, trains and similar places where persons congregate and move about at will. The Council voted to include the Mediquartz Germicidal Ultraviolet Lamp in its list of accepted devises.

THE KIDDE TUBAL INSUFFLATOR ACCEPTABLE

Manufacturer: Kidde Manufacturing Co., Inc., 35 Farrand Street, Bloomfield, N.J.

The Kidde Tubal Insufflator is a device for delivering carbon dioxide in controlled amounts and at controlled pressures into the uterine tubes for diagnostic or therapeutic purposes. The essential part of the apparatus is a gasometer which accomplishes the necessary reduction of pressure and measurement of volume. The whole apparatus is housed compactly in a portable case with a dark gray wrinkle finish. The case measures 48 by 30 by 23 cm. (19 by 12 by 9 inches) and weighs 13.4 Kg. (29 pounds, 10 ounces). The shipping weight is 18 Kg. (40 pounds). The motor actuating the kymograph draws 10 watts on a 110-115 volt alternating current. Included in the unit price of the instrument are (1) five metal refill cartridges of carbon dioxide, (2) one hundred kymograph patient-recording charts, (3) rubber tubing, (4) a bottle of recording ink and (5) a cannula. A valveless oil attachment to hold opaque medium for roentgenologic work is available as an accessory but is not included in the price of the unit.

MEDICAL LICENSURE STATISTICS FOR 1947

FORTY-SIXTH ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Donald G. Anderson, M.D., Secretary, and Anne Tipner

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EXAMINING BOARDS IN THE MEDICAL SPECIALTIES 643

This forty-sixth annual compilation of medical licensure and allied statistics by the Council on Medical Education and Hospitals covers the calendar year 1947 and includes data regarding *(a)* medical examining and licensing boards of the United States and the territories and possessions of the United States, *(b)* boards of examiners in the basic sciences, *(c)* the National Board of Medical Examiners and *(d)* examining boards in the medical specialties

The official reports which form the basis for these compilations have been contributed throughout the year by the medical licensing boards of all the states, the District of Columbia, Alaska, Hawaii, Puerto Rico and the Virgin Islands; the nineteen boards of examiners in the basic sciences; the sixteen approved examining boards in the medical specialties ; the National Board of Medical examiners, and the homeopathic medical licensing boards of Connecticut, Delaware and Maryland. The homeopathic and eclectic examining boards in Arkansas and the homeopathic board in Louisiana did not examine or license any one during the year. No physicians were registered for civilian practice in the Canal Zone.

The cooperation of the officers of the foregoing boards in making possible the vast amount of reliable information presented in the following pages has been invaluable. The Council and THE JOURNAL express their appreciation to those who have supplied these data and for other records furnished throughout the year to the office of the Council.

The tables referring to medical licensing boards include figures for the number of candidates examined for medical licensure in 1947, the numbers licensed and those who secured their first medical license in 1947 and therefore represent additions to the medical profession. There are also included other pertinent data pertaining to the regulations for medical licensure.

TABLE 1.--*Licenses Issued, 1947*

	Examination	On the Basis of Reciprocity and Endorsement	Total
Alabama	44	113	157
Arizona	19	84	103
Arkansas	54	38	92
California	540	1,328	1,868
Colorado	95	88	183
Connecticut	52	200	252
Delaware	18	6	24
District of Columbia	40	216	256
Florida	326	0	326
Georgia	129	69	198
Idaho	62	9	71
Illinois	633	271	904
Indiana	111	153	264
Iowa	94	112	206
Kansas	86	64	150
Kentucky	172	65	237
Louisiana	225	100	325
Maine	31	42	73
Maryland	210	144	354
Massachusetts	92	370	462
Michigan	151	227	378
Minnesota	302	118	420
Mississippi	59	60	119
Missouri	265	150	415
Montana	8	52	60
Nebraska	87	38	125
Nevada	8	11	19
New Hampshire	10	77	87
New Jersey	89	289	378
New Mexico	1	65	66
New York	610	1,035	1,645
North Carolina	113	223	223
North Dakota	25	38	28
Ohio	327	307	634
Oklahoma	74	50	124
Oregon	81	119	200
Pennsylvania	440	210	650
Rhode Island	34	19	53
South Carolina	55	40	95
South Dakota	18	35	53
Tennessee	136	55	191
Texas	282	336	618
Utah	42	23	65
Vermont	13	40	53
Virginia	130	136	266
Washington	116	185	301
West Virginia	40	59	99
Wisconsin	143	154	297
Wyoming	0	20	20
Alaska, Hawaii, Puerto Rico & Virgin Islands	55	49	104
Totals	6,747	7,682	14,429

Table 2.—CANDIDATES EXAMINED BY

Marginal Numbers	SCHOOL	1 Alabama		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 Dist. of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		22 Minnesota		23 Mississippi		24 Missouri		Marginal Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	ALABAMA																																																	
1	Med. Col. of Alabama	49	0															4	0																															1
	ARKANSAS																																																	
2	Univ. of Arkansas					49	0	1	0															2	0									1	0													1	0	2
	CALIFORNIA																																																	
3	Col. of Med. Evangelists			1	1			86	0									3	0			3	0	1	0											1	0	3	0			1	0	2	0	2	0			3
4	Stanford Univ.							61	0	1	0							1	0			1	0															1	0					1	0			1	0	4
5	Univ. of California	1	0	1	0			63	0	1	0																																	1	0					5
6	Univ. of Southern California			1	0			75	0																									1	0															6
	COLORADO																																																	
7	Univ. of Colorado							1	0	52	0											1	0	1	0																									7
	CONNECTICUT																																																	
8	Yale Univ.							1	0			3	1					2	0															2	0					1	0									8
	DISTRICT OF COLUMBIA																																																	
9	George Washington Univ.	3	0					6	0							6	0	3	1	1	0			1	0													1	0			3	0							9
10	Georgetown Univ.							2	0			1	0			10	0	5	0											1	0					2	0	8	0	3	0			1	0					10
11	Howard Univ.							1	0							8	0	1	0					8	0							1	0	2	0			4	0			2	0					20	0	11
	GEORGIA																																																	
12	Emory Univ.																	33	1	53	0																													12
13	Univ. of Georgia																	18	1	64	0																													13
	ILLINOIS																																																	
14	Loyola Univ.							7	0									7	0					61	0	1	0	1	0	1	0			1	0							2	0	4	0					14
15	Northwestern Univ.	3	0	1	0			12	0	2	0	1	0					1	0	1	0	9	0	124	0	0	2	2	0	3	0									3	0	5	0	13	0	2	0	3	0	15
16	Univ. of Chicago							4	0	1	0					1	0	3	0			4	0	44	1			1	0	1	0			1	0	1	0	1	0			3	0	3	0			2	0	16
17	Univ. of Illinois	2	0	2	0			17	0	1	0							2	0			2	0	218	0	3	0			1	0							1	0			3	0	6	0					17
	INDIANA																																																	
18	Indiana Univ.			2	0			2	0									5	2			1	0			93	6													1	0			8	0					18
	IOWA																																																	
19	State Univ. of Iowa			1	1			3	0	1	0							2	1			2	0					30	0													1	0	2	0					19
	KANSAS																																																	
20	Univ. of Kansas							1	0							1	0	2	0			2	0							72	0													1	0					20
	KENTUCKY																																																	
21	Univ. of Louisville							1	0									8	0			1	0									83	0	2	0					1	0	1	0	1	0	1	0			21
	LOUISIANA																																																	
22	Louisiana State Univ.											1	0					7	0			1	0											71	0											3	0			22
23	Tulane Univ. of Louisiana	1	0	1	0			1	0									19	0					2	0									117	0					1	0			2	0	7	0			23
	MARYLAND																																																	
24	Johns Hopkins Univ.	1	0					1	0					1	0	1	0	4	0	1	0	2	0															48	0			1	0			1	0			24
25	Univ. of Maryland							3	0	1	0			2	0			10	0					1	0			1	0									73	0	1	0									25
	MASSACHUSETTS																																																	
26	Boston Univ.							2	0									1	0					1	0															2	0									25
27	Harvard Med. Sch.	6	0					5	0									1	0			1	0	2	0			1	0			1	0	3	0	1	0			8	1	1	0	4	0	1	0	1	0	27
28	Tufts Col.							1	0									4	0					1	0									1	0	1	0			3	0	1	0							28
	MICHIGAN																																																	
29	Univ. of Michigan											1	0			1	0	7	0			1	0	1	0											1	0					9	0	3	0					29
30	Wayne Univ.							1	0									5	0																							68	0							30
	MINNESOTA																																																	
31	Univ. of Minnesota			1	0			3	0	1	0					1	0							5	0									1	0									137	0					31
	MISSOURI																																																	
32	St. Louis Univ.							10	0	1	0							2	0			2	0	3	0									1	0					1	1			2	0			31	0	32
33	Washington Univ.			2	0			1	0			1	0					1	0			1	0	1	0																			3	0	1	0	92	0	33
	NEBRASKA																																																	
34	Creighton Univ.			1	0	1	0	[illegible]	0	5	0											2	0					12	0	1	0													2	0			1	0	34
35	Univ. of Nebraska					1	0											1	0					3	0			2	0															1	0					35
	NEW YORK																																																	
36	Albany Med. Col.																	1	0															1	0															36
37	Columbia Univ.	4	0					3	0	1	0	1	0					2	0					1	0									1	0	3	0			1	0	1	0	3	0			2	0	37
38	Cornell Univ.	1	0					1	0			2	0					3	0	3	0	1	0	3	0											1	0	1	0	1	0	1	0					1	0	38
39	Long Island Col.	2	0	1	0							3	0					4	2					1	0									1	0			1	0	1	0									39
40	New York Med. Col.							2	0									3	0																															40
41	New York Univ.							1	0			6	0			2	0	8	0					2	0	1	1			1	0					1	0			1	0							1	0	41
42	Syracuse Univ.			1	0			1	0	1	0	1	0							1	0	1	0	1	0					1	0																			42
43	Univ. of Buffalo																	1	0																															43
44	Univ. of Rochester							2	0			1	1					2	0					0	1											1	0					2	0							44
	NORTH CAROLINA																																																	
45	Bowman Gray of Wake Forest																	3	0																									1	0					45
46	Duke Univ.							2	0									9	1	1	0													2	0			1	0			1	0							46
	OHIO																																																	
47	Ohio State Univ.							3	0									3	1																															47
48	Univ. of Cincinnati	1	0					2	0									6	0			1	0																	1	0			1	0	1	0			48
49	Western Reserve Univ.																	4	1																															49
	OKLAHOMA																																																	
50	Univ. of Oklahoma					1	0			3	0							1	1			1	0	1	0									1	0															50
	OREGON																																																	
51	Univ. of Oregon			0	1			7	0													6	0	3	0			1	0	1	0			4	0			4	0					4	0					51
	PENNSYLVANIA																																																	
52	Hahnemann Med. Col. and Hosp. of Philadelphia	11	0					12	0			3	0	4	0	1	0	4	0					1	0			1	0			1	0	2	0			7	0			1	0							52
53	Jefferson Med. Col. of Philadelphia	4	0					1	0			4	0	4	0			4	0			2	0											1	0					3	0			5	0	4	0			53
54	Temple Univ.							6	0			1	2	5	0			8	1			4	0	1	0	0	1							1	0	3	0			1	0	2	0	2	0					54
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		

P—Passed; F—Failed.

Marginal Number	25 Montana		26 Nebraska		27 Nevada		28 New Hampshire		29 New Jersey		30 New Mexico		31 New York		32 North Carolina		33 North Dakota		34 Ohio		35 Oklahoma		36 Oregon		37 Pennsylvania		38 Rhode Island		39 South Carolina		40 South Dakota		41 Tennessee		42 Texas		43 Utah		44 Vermont		45 Virginia		46 Washington		47 West Virginia		48 Wisconsin		49 Wyoming		50 Alaska, Hawaii and Puerto Rico		Totals	Total-Passed	Total-Failed	No. Boards Examined by	Percentage Failed	Marginal Number
	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F						
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4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	69	69	0	9	0.0	4
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8	.	.	.	.	.	.	.	.	.	.	.	.	0	1	.	.	.	.	.	.	.	.	.	.	.	.	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	1	0	15	13	2	10	1.3	8
9	.	.	.	.	.	.	.	.	.	.	.	.	0	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	3	0	1	0	.	.	.	.	.	.	31	29	2	13	6.5	9
10	.	.	.	.	.	.	1	0	8	0	.	.	5	4	.	.	.	.	.	.	.	.	.	.	2	0	6	0	.	.	.	.	.	.	.	.	.	.	.	.	1	0	1	0	.	.	.	.	.	.	1	0	62	58	4	17	6.5	10
11	.	.	.	.	.	.	.	.	3	0	.	.	15	7	1	0	.	.	.	.	.	.	.	.	5	0	.	.	1	0	.	.	.	.	.	.	.	.	.	.	1	0	.	.	2	0	.	.	.	.	.	.	82	75	7	16	8.5	11
12	.	.	.	.	.	.	.	.	.	.	.	.	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	91	88	3	3	3.3	12
13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	85	84	1	3	1.2	13
14	.	.	.	.	.	.	.	.	5	2	.	.	3	5	.	.	.	.	7	0	.	.	.	.	1	0	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	1	0	.	.	3	0	.	.	.	.	113	106	7	16	6.2	14
15	1	0	.	.	1	0	.	.	1	0	.	.	1	2	.	.	1	0	7	0	1	0	.	.	2	0	.	.	.	.	2	0	.	.	2	0	.	.	.	.	.	.	28	0	2	0	11	0	.	.	1	0	252	248	4	31	1.6	15
16	1	0	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	2	0	.	.	4	0	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	5	0	.	.	.	.	.	.	.	.	85	84	1	20	1.2	16
17	.	.	1	0	.	.	.	.	.	.	.	.	2	1	.	.	3	0	.	.	.	.	1	0	.	.	.	.	.	.	1	0	.	.	1	0	.	.	.	.	.	.	6	0	2	0	1	0	.	.	2	0	279	278	1	22	0.4	17
18	.	.	.	.	.	.	.	.	.	.	.	.	0	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	122	113	9	9	7.4	18
19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	45	43	2	9	4.4	19
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21	.	.	.	.	.	.	.	.	.	.	.	.	1	2	2	0	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	0	2	0	1	0	.	.	1	0	111	109	2	16	1.8	21
22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	83	83	0	5	0.0	22
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24	.	.	.	.	.	.	1	0	.	.	.	.	2	0	1	0	.	.	.	.	.	.	.	.	1	0	.	.	.	.	1	0	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	1	0	69	69	0	17	0.0	24
25	.	.	.	.	1	0	.	.	.	.	.	.	1	0	10	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	4	0	109	109	0	13	0.0	25
26	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	8	8	0	6	0.0	26
27	.	.	.	.	.	.	.	.	.	.	.	.	5	1	10	0	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	1	0	1	0	.	.	1	0	.	.	2	0	.	.	.	.	.	.	.	.	59	57	2	21	3.5	27
28	.	.	.	.	.	.	1	0	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	7	0	1	0	.	.	.	.	.	.	.	.	2	0	.	.	1	0	.	.	.	.	.	.	1	0	27	26	1	14	3.7	28
29	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	1	0	.	.	2	0	30	30	0	13	0.0	29
30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	75	75	0	4	0.0	30
31	1	0	.	.	.	.	.	.	.	.	.	.	1	1	.	.	2	0	.	.	.	.	1	0	1	0	.	.	1	0	.	.	.	.	1	0	.	.	.	.	.	.	1	0	.	.	.	.	.	.	0	1	160	158	2	16	1.2	31
32	.	.	.	.	2	0	.	.	1	0	.	.	3	3	1	0	.	.	1	0	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	1	0	1	0	.	.	2	0	161	157	4	19	2.5	32
33	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	109	109	0	12	0.0	33
34	.	.	13	0	.	.	.	.	.	.	.	.	1	2	.	.	.	.	.	.	.	.	3	0	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	2	0	.	.	1	0	.	.	1	0	56	54	2	16	3.6	34
35	.	.	70	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	1	0	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	1	0	85	83	2	11	2.4	35
36	.	.	.	.	.	.	.	.	.	.	.	.	3	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5	5	0	3	0.0	36
37	.	.	.	.	1	0	1	0	4	0	.	.	7	4	.	.	.	.	.	.	.	.	.	.	1	0	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	0	2	0	.	.	.	.	3	0	50	46	4	21	8.0	37
38	.	.	.	.	.	.	.	.	1	0	.	.	10	1	1	0	.	.	1	0	.	.	.	.	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	36	35	1	18	2.8	38
39	.	.	.	.	.	.	.	.	4	1	.	.	16	11	.	.	.	.	.	.	.	.	.	.	1	0	2	0	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	52	38	14	13	2.7	39
40	1	0	.	.	.	.	.	.	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	19	14	5	6	26.3	40
41	.	.	.	.	.	.	1	0	2	0	.	.	22	7	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	60	52	8	15	13.3	41
42	.	.	.	.	.	.	.	.	.	.	.	.	14	7	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	30	23	7	10	23.3	42
43	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	3	0	3	0.0	43
44	.	.	.	.	.	.	.	.	.	.	.	.	10	5	.	.	.	.	2	0	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	0	.	.	1	0	.	.	0	1	33	25	8	12	24.2	44
45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	41	0	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	47	47	0	5	0.0	45
46	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5	0	.	.	.	.	.	.	.	.	3	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	26	25	1	9	3.8	46
47	.	.	.	.	.	.	.	.	.	.	.	.	1	2	.	.	.	.	74	0	.	.	.	.	3	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	0	.	.	.	.	1	0	90	67	3	7	3.3	47
48	.	.	.	.	.	.	.	.	.	.	.	.	4	3	.	.	1	0	81	0	.	.	.	.	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	0	.	.	.	.	.	.	104	101	3	9	2.9	48
49	.	.	.	.	.	.	.	.	.	.	.	.	5	2	.	.	.	.	75	0	.	.	.	.	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	0	94	91	3	8	3.2	49
50	.	.	.	.	.	.	.	.	.	.	.	.	0	2	.	.	.	.	.	.	69	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	1	0	82	79	3	10	3.7	50
51	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	63	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	17	0	.	.	.	.	.	.	.	.	115	114	1	13	0.9	51
52	.	.	.	.	.	.	.	.	14	1	.	.	5	12	.	.	.	.	13	0	.	.	.	.	45	2	2	0	.	.	1	0	.	.	.	.	.	.	.	.	.	.	1	0	2	0	.	.	.	.	1	0	137	122	15	21	10.9	52
53	.	.	.	.	.	.	.	.	14	0	.	.	1	1	14	0	.	.	1	0	.	.	.	.	94	1	6	0	1	0	1	0	.	.	.	.	.	.	.	.	.	.	1	0	3	0	.	.	.	.	1	0	171	169	2	21	1.2	53
54	.	.	.	.	1	0	.	.	9	1	.	.	5	3	1	0	7	0	2	0	.	.	1	0	76	0	1	0	.	.	5	0	.	.	.	.	.	.	.	.	.	.	2	0	9	0	5	0	.	.	.	.	166	158	8	25	4.8	54
	25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50							

Table 2.—CANDIDATES EXAMINED BY

Marginal Numbers	SCHOOL	1 Alabama		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 Dist. of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		22 Minnesota		23 Mississippi		24 Missouri		Marginal Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	PENNSYLVANIA (continued)																																																	
55	Univ. of Pennsylvania	6	0	.	.	.	.	1	0	1	0	.	.	1	0	1	0	11	1	.	.	.	.	2	0	.	.	.	.	.	.	.	.	.	.	2	0	.	.	.	.	.	.	6	0	2	0	.	.	55
56	Univ. of Pittsburgh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	0	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	56
57	Woman's Med. Col	.	.	.	.	.	.	3	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	2	0	.	.	.	.	.	.	57
	SOUTH CAROLINA																																																	
58	Med. Col. of the State of South Carolina	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	0	.	.	1	0	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	58
	TENNESSEE																																																	
59	Meharry Med. Col	.	.	.	.	.	.	1	0	.	.	.	.	.	.	1	0	3	0	.	.	.	.	2	0	1	1	.	.	2	0	.	.	.	.	.	.	.	.	0	1	.	.	.	.	.	.	5	0	59
60	Univ. of Tennessee	4	0	.	.	.	.	1	1	.	.	1	0	.	.	1	0	15	0	.	.	1	0	2	0	.	.	.	.	.	.	.	.	0	1	.	.	.	.	.	.	.	.	2	0	29	0	4	0	60
61	Vanderbilt Univ	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	61
	TEXAS																																																	
62	Baylor Univ	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	0	1	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	0	.	.	.	.	62
63	Southwestern Med. Col. of the Southwestern Med. Foundation	.	.	1	0	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	63
64	Univ. of Texas	.	.	1	0	2	0	1	0	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	2	0	.	.	.	.	64
	UTAH																																																	
65	Univ. of Utah	.	.	.	.	.	.	3	0	.	.	.	.	.	.	.	.	1	0	.	.	1	0	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	65
	VERMONT																																																	
66	Univ. of Vermont	.	.	.	.	.	.	1	0	.	.	1	0	.	.	.	.	1	0	.	.	.	.	.	.	.	.	1	0	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	66
	VIRGINIA																																																	
67	Med. Col. of Virginia	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	4	0	.	.	1	0	.	.	.	.	.	.	.	.	1	0	1	0	.	.	5	0	.	.	.	.	1	0	.	.	.	.	67
68	Univ. of Virginia	4	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6	0	1	0	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	2	0	.	.	68
	WISCONSIN																																																	
69	Marquette Univ	.	.	.	.	.	.	10	0	2	0	.	.	.	.	.	.	.	.	.	.	.	.	4	0	2	0	1	0	.	.	.	.	.	.	.	.	.	.	1	0	5	0	6	0	1	0	.	.	69
70	Univ. of Wisconsin	.	.	1	0	.	.	7	0	1	0	1	0	.	.	.	.	3	0	.	.	1	0	4	0	1	0	.	.	.	.	.	.	1	0	.	.	2	0	.	.	.	.	2	0	.	.	.	.	70
	CANADA																																																	
71	Dalhousie Univ	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	0	.	.	.	.	.	.	.	.	.	.	.	.	71
72	Laval Univ	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	2	0	.	.	.	.	.	.	.	.	.	.	1	0	.	.	1	3	.	.	.	.	.	.	.	.	72
73	Mc Gill Univ	2	0	.	.	.	.	7	0	.	.	2	0	.	.	.	.	1	0	1	0	.	.	3	0	2	0	.	.	.	.	.	.	.	.	3	0	.	.	1	1	.	.	1	0	.	.	.	.	73
74	Queen's Univ	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	1	0	.	.	.	.	74
75	Univ. of Alberta	.	.	.	.	.	.	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	75
76	Univ. of Manitoba	.	.	.	.	.	.	6	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	0	.	.	1	0	76
77	Univ. of Montreal	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	1	.	.	.	.	.	.	.	.	.	.	.	.	77
78	Univ. of Toronto	.	.	.	.	.	.	13	0	.	.	1	0	.	.	.	.	3	0	.	.	.	.	2	0	2	0	.	.	.	.	.	.	1	0	.	.	2	0	1	2	.	.	3	0	.	.	.	.	78
79	Univ. of Western Ontario	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	3	0	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	2	0	.	.	.	.	79
	OTHERS																																																	
80	Foreign Med. Faculties	.	.	.	.	.	.	23	9	7	0	9	11	.	.	4	0	5	1	1	0	.	.	26	14	2	1	1	0	1	0	1	0	.	.	3	1	12	6	6	12	.	.	.	.	2	0	7	0	80
81	Extinct Med. Schools	1	0	.	.	.	.	.	.	1	0	.	.	.	.	.	.	5	1	1	0	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	1	.	.	2	0	.	.	.	.	81
82	Unapproved Med. Schools	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	11	0	.	.	.	.	54	0	.	.	.	.	.	.	2	0	.	.	.	.	.	.	37	111	.	.	.	.	.	.	.	.	82
83	Schools of Osteopathy	1	.	.	.	.	.	.	.	11	0	3	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	7	.	.	.	.	.	.	.	.	83
84	Totals	97		22		54		513		95		66		18		39		331		129		62		621		123		55		86		90		226		33		181		224		116		240		59		265		84
85	Totals—Examined—Passed	97		19		54		503		95		49		18		39		314		129		62		605		111		55		86		90		225		31		175		84		116		240		59		265		85
86	Totals—Examined—Failed	0		3		0		10		0		17		0		0		17		0		0		16		12		0		0		0		1		2		6		140		0		0		0		0		86
87	Percentage Failed	0.0		13.6		0.0		1.9		0.0		25.8		0.0		0.0		5.1		0.0		0.0		2.6		9.8		0.0		0.0		0.0		0.4		6.1		3.3		62.5		0.0		0.0		0.0		0.0		87
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		

P—Passed; F—Failed.

STATE BOARDS OF MEDICAL EXAMINERS

LICENSES ISSUED

During the year 1947 there were 14,429 licenses to practice medicine issued by the medical examining boards of the forty-eight states, the District of Columbia, Alaska, Hawaii, Puerto Rico and the Virgin Islands, as shown in table 1. Of these licenses 6,747 were issued after examination and 7,682 by reciprocity and endorsement of other state licenses or of the certificate of the National Board of Medical Examiners.

It does not follow that all physicians certified in a given year after examination were tested in that year. In twenty-four states, the District of Columbia, Alaska, Canal Zone, Hawaii, Puerto Rico and the Virgin Islands, the internship is a requisite for practice, but in several of these states the physician candidate is permitted to take the written examination before completion of the internship and, if successful, the license is withheld and dated on completion of the internship. Licenses are also withheld in some states for proof of citizenship and other technicalities. In other states the licenses of those examined in December are dated and issued in the following year. The statistics in table 1, therefore, include many who were examined in 1946 and even a few in previous years. Consequently, figures in this table will not correspond with those hereinafter given, which deal entirely with physicians examined for licensure within the year 1947.

Likewise, the figures presented in this table, particularly in the endorsement group, do not necessarily represent individuals, since the figures include persons who may have been licensed in more than one state during a given year. Neither does the total figure represent additions to the medical profession. In Tables 12, 13 and 14 (see pages 620 and 621) can be noted the number who secured licenses

MEDICAL EXAMINING BOARDS, 1947—Continued

Marginal Number	25 Montana		26 Nebraska		27 Nevada		28 New Hampshire		29 New Jersey		30 New Mexico		31 New York		32 North Carolina		33 North Dakota		34 Ohio		35 Oklahoma		36 Oregon		37 Pennsylvania		38 Rhode Island		39 South Carolina		40 South Dakota		41 Tennessee		42 Texas		43 Utah		44 Vermont		45 Virginia		46 Washington		47 West Virginia		48 Wisconsin		49 Wyoming		50 Alaska, Hawaii and Puerto Rico		Totals	Total-Passed	Total-Failed	No. Boards Examined by	Percentage Failed	Marginal Number
	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F						
55	.	.	.	.	1	0	.	.	6	0	.	.	6	2	7	0	.	.	.	.	.	.	.	.	70	0	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	1	0	130	127	3	18	2.3	55
56	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	75	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	82	82	0	6	0.0	56
57	.	.	.	.	.	.	.	.	.	.	.	.	1	2	.	.	.	.	1	0	.	.	.	.	19	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	1	0	1	0	.	.	2	0	35	33	2	11	5.7	57
58	.	.	.	.	.	.	.	.	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	48	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	56	55	1	5	1.8	58
59	.	.	.	.	.	.	.	.	.	.	.	.	0	5	2	0	.	.	.	.	.	.	.	.	2	0	.	.	2	0	.	.	10	0	1	0	.	.	.	.	1	0	.	.	1	0	.	.	.	.	1	0	42	35	7	17	16.7	59
60	.	.	.	.	.	.	.	.	.	.	.	.	1	0	1	0	.	.	1	0	.	.	.	.	1	0	.	.	.	.	.	.	61	0	1	0	.	.	.	.	1	0	1	0	.	.	.	.	.	.	.	.	130	128	2	19	1.5	60
61	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	33	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	44	44	0	3	0.0	61
62	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	69	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	77	74	3	6	3.9	62
63	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	1	0	.	.	.	.	.	.	.	.	.	.	.	.	53	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	58	58	0	6	0.0	63
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65	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	7	7	0	5	0.0	65
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67	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	0	.	.	.	.	.	.	.	.	3	0	.	.	.	.	.	.	.	.	1	0	.	.	.	.	65	0	1	0	5	0	.	.	.	.	2	0	94	94	0	14	0.0	67
68	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	51	0	.	.	1	0	.	.	.	.	2	0	73	73	0	10	0.0	68
69	.	.	.	.	1	0	.	.	1	0	.	.	7	6	.	.	.	.	.	.	.	.	.	.	4	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10	0	.	.	43	0	.	.	1	0	105	99	6	16	5.7	69
70	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	1	0	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	64	0	.	.	.	.	92	92	0	15	0.0	70
71	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	2	0	1	0.0	71
72	.	.	.	.	.	.	.	.	.	.	.	.	3	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	17	10	7	5	41.2	72
73	.	.	.	.	.	.	3	0	.	.	.	.	9	2	.	.	3	0	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	1	0	.	.	.	.	.	.	1	0	45	42	3	17	6.7	73
74	.	.	.	.	.	.	.	.	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	5	4	1	4	20.0	74
75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5	5	0	4	0.0	75
76	.	.	.	.	.	.	.	.	.	.	.	.	2	0	1	0	2	0	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	17	17	0	8	0.0	76
77	.	.	.	.	.	.	1	0	.	.	.	.	3	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5	4	1	3	20.0	77
78	.	.	.	.	.	.	.	.	.	.	.	.	8	3	.	.	.	.	.	.	.	.	.	.	2	0	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	2	0	.	.	.	.	.	.	.	.	46	41	5	13	10.9	78
79	.	.	.	.	.	.	.	.	.	.	.	.	2	1	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	11	10	1	6	9.1	79
80	.	.	2	0	.	.	.	.	3	5	.	.	137	250	1	0	3	0	6	1	.	.	.	.	6	0	1	0	.	.	2	0	2	0	3	2	.	.	1	0	1	4	2	0	.	.	.	.	.	.	3	1	601	283	318	31	52.9	80
81	1	0	.	.	.	.	.	.	.	.	.	.	3	2	0	1	.	.	1	0	.	.	.	.	.	.	.	.	.	.	1	0	.	.	1	0	.	.	.	.	.	.	3	0	.	.	.	.	.	.	2	0	28	23	5	15	17.9	81
82	.	.	.	.	.	.	1	0	.	.	1	0	132	74	.	.	.	.	4	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	0	4	0	.	.	.	.	.	.	.	.	435	250	185	10	42.5	82
83	.	.	1	1	.	.	.	.	9	2	.	.	134	26	.	.	.	.	12	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	38	8	.	.	.	.	.	.	.	.	.	.	3	0	.	.	.	.	262	214	48	10	18.3	83
84	8		90		8		10		102		1		1092		114		25		300		72		80		440		32		55		18		110		295		0.		28		134		116		40		143		0		58		7,124					84
85	8		87		8		10		89		1		610		113		25		297		72		80		437		32		55		18		110		282		0		27		130		116		40		143		0		55			6,374				85
86	0		3		0		0		13		0		482		1		0		3		0		0		3		0		0		0		0		13		0		1		4		0		0		0		0		3				750			86
87	0.0		3.3		0.0		0.0		12.7		0.0		44.1		0.9		0.0		1.0		0.0		0.0		0.7		0.0		0.0		0.0		0.0		4.4		0.0		3.7		3.0		0.0		0.0		0.0		0.0		5.2						10.5	87
	25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50							

for the first time and represent additions to the medical profession in the United States and its territories and possessions.

Of the 14,429 licenses to practice medicine and surgery issued in 1947, the greatest number (1,868) were issued in California. New York issued 1,645 and Illinois 904, while Ohio, Pennsylvania and Texas licensed more than 600 physicians. Sixteen states and the territories and possessions licensed fewer than 100. The fewest, 19, were licensed in Nevada.

While in 1947 the number licensed was greater than in any prewar year, there were 1,802 fewer licensed than in 1946.

The decrease in licenses issued was evident only in the group licensed without examination. Those registered after examination was 185 more than in 1946. Increases in licenses issued, however, as compared with 1946 were recorded in thirteen states and the territories and possessions as follows:

	1946	1947
Arizona	100	103
Florida	318	326
Idaho	56	71
Indiana	250	264
Kentucky	182	237
Louisiana	283	325
Maryland	343	354
Minnesota	380	420
New Mexico	59	66
North Carolina	286	336
North Dakota	30	53
South Dakota	46	53
Washington	294	301
Territories and Possessions	101	104

Totals for twelve previous years and for 1947 by all methods of licensure are included in table 3. The high figures for the years 1936 to 1941 in the annual number of licenses issued were due to the licensure of foreign graduates. In succeeding years the accelerated programs in medical schools which produced 20,662 graduates in a three year cycle increased the numbers annually licensed. The noticeable increase in the last two years reflects the migration of veteran medical officers.

In the thirteen year period shown 130,052 medical licenses have been issued, 82,049 after examination and 48,003 by *endorsement* of credentials.

CANDIDATES EXAMINED BY MEDICAL EXAMINING BOARDS

Compilations referring to those examined in 1947 by individual states, the District of Columbia, Alaska, Hawaii and Puerto Rico, indicating the numbers who passed and failed in each state, the medical school of graduation, the percentage of failures by schools and the numbers of states in which graduates of a given school were examined, are recorded in table 2. Medical schools in the United States which are no longer operating, foreign faculties of medicine, unapproved medical schools and schools of osteopathy are not listed by name, but the numbers examined in each state in these four categories are included following the figures for existing medical schools in the United States and Canada.

In the past year 7,124 applicants for licensure were examined, of whom 6,374 passed and 588, 10.5 per cent, failed. These candidates represented seventy approved medical schools in the United States, nine approved medical schools of Canada, fifteen United States medical schools now extinct, 102 faculties of medicine of other countries, six unapproved medical schools in the United States and eight schools of osteopathy. Osteopaths who were granted the privilege to practice medicine, surgery or both by medical examining boards are included in these statistics. Osteopaths who obtain the legal right to special practice by the osteopathic board are not included in these compilations.

TABLE 3.—*Licenses Issued, 1935-1947*

	Examination	Reciprocity and Endorsement	Total
1935.......	5,725	2,194	7,919
1936.......	6,275	2,773	9,048
1937.......	6,629	3,205	9,834
1938.......	6,557	2,956	9,513
1939.......	6.400	2,872	9,272
1940.......	6,289	2,866	9,155
1941.......	6,056	2,760	8,816
1942.......	6,142	2,469	8,611
1943.......	6,060	2,340	8,400
1944.......	7,062	2,596	9,658
1945.......	5,545	3,621	9,166
1946.......	6,562	9,669	16,231
1947.......	6,747	7,682	14,429
Totals..	82,049	48,003	130,052

In recent years examinations and reciprocity meetings have been scheduled at frequent times by many states to facilitate licensure and enable physicians to commence the practice of medicine without delay. Later in this study there is included a tabulation giving the schedules for all states. This effort on the part of officers of licensing boards is noteworthy, especially in view of the greatly increased numbers of physicians applying for licensure.

The 7,124 examinees represented 5,645 graduates of approved medical schools in the United States, of whom 3.1 per cent failed; 153 graduates of approved Canadian schools, 11.8 per cent of whom failed; 28 who graduated from United States medical schools now extinct, with 17.9 % failures; 601 graduates of faculties of medicine located in countries other than the United States and Canada, 52.9 per cent of whom failed; 435 graduates of of unapproved medical schools, with 42.5 per cent failures, and 262 graduates of schools of osteopathy, 18.3 per cent of whom failed.

As in table 1, the 7,124 physicians and others examined for medical licensure do not represent an equal number of individuals, since a candidate might take an examination in more than one state and is counted in each state. However, if a candidate failed more than once in a given state within the year he is counted in that state as only one failure.

The greatest number of graduates of any one school examined was 279, representing the University of Illinois College of Medicine, 218 of whom were examined in Illinois and 61 in twenty-one other states. There were 252 graduates from Northwestern University Medical School examined in thirty-one states. Fewer than 200 from other schools were represented. There were eighteen institutions in the group of schools whose graduates exceeded 100.

Twenty-three approved schools in the United States had no failures before medical licensing boards, 32 less than 5 per cent and 9 between 5 and 10 per cent. There were six schools with 10 per cent or more failures in state examinations. Failures from all existing approved schools in the United States amounted to 3.1 per cent. The percentages of failures recorded by school in table 6 which includes those who were examined by the National Board of Medical Examiners in its final examination as well as those passing state tests probably presents a more accurate analysis of the quality of the graduates of these schools on the basis of their proficiency in examination tests.

Graduates of the Medical College of Alabama, which had developed an approved four year program and graduated its first class in 1946, appeared for the first time for licensure in 1947. All the 53 graduates examined were passed. They were registered in Alabama and Florida.

Three of the five homeopathic boards in existence examined 8 candidates; Connecticut 3, Delaware 4, and Maryland 1. The homeopathic and eclectic boards in Arkansas and the homeopathic board in Louisiana did not examine any one in 1947.

Graduates of Northwestern University Medical School were examined in the greatest number of states—thirty one. Six schools had graduates examined in more than twenty states. Seven schools had graduates examined in fewer than five states.

One hundred and fifty-three graduates of the nine approved medical schools in Canada were tested for medical licensure in the United States in 1947 in twenty-two states and Alaska (table 4); 135 passed and 18, 11.8 per cent, failed. The majority appeared before the boards in California, Illinois, Maine and New York.

TABLE 4.--*Graduates of Medical Schools in Canada Examined for Licensure in the United States, 1947*

	Examined	Passed	Failed
Alabama	2	2	0
California	28	28	0
Connecticut	4	4	0
Florida	4	4	0
Georgia	1	1	0
Illinois	11	11	0
Indiana	7	7	0
Louisiana	2	2	0
Maine	11	10	1
Maryland	2	2	0
Massachusetts	9	3	6
Minnesota	9	9	0
Missouri	1	1	0
New Hampshire	4	4	0
New York	39	28	11
North Carolina	1	1	0
North Dakota	5	5	0
Ohio	1	1	0
Pennsylvania	5	5	0
Texas	1	1	0
Virginia	1	1	0
Washington	4	4	0
Alaska	1	1	0
Totals	153	135	18

The highest percentage of failures was 41.2 per cent, representing 17 graduates of Laval University Faculty of Medicine who were examined in five states. Three Canadian schools had no failures before United States licensing boards, while the other schools had more than 5 per cent failures.

Graduates of medical schools of other countries were examined by thirty-one boards. There were 601 such graduates with 318 (52.9 per cent) failures.

Twenty-eight graduates of medical schools no longer operating were tested by fifteen boards, of whom 23 passed and 5 (17.9 per cent) failed.

There were 435 graduates of unapproved medical schools examined in ten states, of whom 185, 42.5 per cent, failed. Two-hundred and sixty-two osteopaths were tested in ten states, with 18.3 per cent failures. Those registered in these two categories are discussed separately later in an analysis of these statistics.

Altogether, there were 7,124 candidates who appeared for licensure in 1947, of whom 6,374 passed and 750, 10.5 per cent, failed.

The source of applicants for licensure last year on the basis of examination is further tabulated in table 5, giving totals for six groups, namely, approved medical schools in the United States and those in Canada, schools no longer in existence, foreign faculties of medicine, unapproved medical schools and schools of osteopathy. As previously mentioned, 3.1 per cent of graduates from the schools of the United States, 11.8 per cent from Canadian schools and 17.9 per cent from extinct medical schools failed. The greatest percentage of failures represented three groups--foreign and unapproved medical schools and schools of osteopathy.

Figures which indicate actual licentiates and represent additions to the medical profession in 1947 are given later in tables 12, 13 and 14.

CONSOLIDATED EXAMINATIONS

A more accurate picture of the performance of graduates in licensure examinations than the foregoing is given by the figures which combine the results of state medical board examinations with those of part III of the National Board examinations (table 6). It can be noted that in some instances schools having a high percentage of failures before state licensing boards had few, if any, failures before the National Board. In 1947 there were 5,642 graduates of approved medical schools in the United States examined by medical licensing boards, of whom 3.1 per cent failed. In the same period 1,708 graduates of these institutions appeared for part III of the examinations of the National Board of Medical Examiners, of whom 0.9 per cent failed. In these consolidated figures for 7,350 graduates, the percentage of failures of approved medical schools in the United States was reduced to 2.3 per cent.

In calculating the percentage of failures no person was counted as a failure more than once. Eleven individuals had more than one failure during 1947. Of these, three were from United States approved schools and 8 from foreign schools.

Of the Canadian graduates, 11.8 per cent failed state board tests and 10.9 the combined tests. Only 11 graduates of foreign medical schools were admitted to the National Board's final examination, while 601 were examined by state licensing boards. Two graduates of extinct approved medical schools appeared before the National Board and 28 before state boards.

TABLE 5.—*Source of Candidates Examined for Licensure in the United States, 1947*

Medical Schools	Number Schools	Number Examined	Number Passed	Number Failed	Percentage Passed
Approved in U.S.	70	5,645	5,469	176	3.1
Approved in Canada	9	153	135	18	11.8
Extinct	15	28	23	5	17.9
Foreign	102	601	283	318	52.9
Unapproved schools	6	435	250	185	42.5
Schools of Osteopathy	8	262	214	48	18.3
Totals	210	7,124	6,374	750	10.5

No comparison can be made of these groups. The National Board does not admit to its examinations the graduates of unapproved medical schools or schools of osteopathy, and from foreign schools it admits only the graduates of the university medical schools of Great Britain and Ireland.

TABLE 6.--*Consolidated Examinations, State Medical Examining Boards and the National Board of Medical Examiners, 1947*

— School	Results by Medical Examining Board Tests		Part III Examination of National Board of Medical Examiners		Total Examined	Totals		%F
	P	F*	P	F*		P	F	
Medical College of Alabama................	53	0	0	0	53	0	0	0.0
University of Arkansas....................	70	2	1	0	73	71	2	2.7
Coll. of Med. Evan. (Calif.)..............	112	2	43	2	159	155	4	2.5
Stanford University.......................	69	0	2	0	71	71	0	0.0
University of California..................	68	0	2	0	70	70	0	0.0
Univ. of Southern California..............	79	0	1	0	80	80	0	0.0
University of Colorado....................	61	0	10	0	71	71	0	0.0
Yale University (Connecticut).............	13	2	67	1	83	80	3	3.6
George Washington Univ. (D. C.)...........	29	2	64	2	97	93	4	4.1
Georgetown University.....................	58	4	47	0	109	105	4	3.7
Howard University.........................	75	7	14	0	96	89	7	7.3
Emory University (Georgia)................	88	3	1	0	92	89	3	3.3
University of Georgia.....................	84	1	0	0	85	84	1	1.2
Loyola University (Illinois)..............	106	7	9	0	122	115	7	5.7
Northwestern University...................	248	4	15	0	267	263	4	1.5
University of Chicago.....................	84	1	1	0	86	85	1	1.2
University of Illinois....................	278	1	5	0	284	283	1	0.3
Indiana University........................	113	9	13	0	135	126	9	6.7
State University of Iowa..................	43	2	28	0	73	71	2	2.7
University of Kansas......................	89	0	0	0	89	89	0	0.0
University of Louisville (Ky.)............	109	2	7	0	118	116	2	1.7
Louisiana State University................	83	0	3	0	86	86	0	0.0
Tulane University.........................	157	1	7	1	166	164	2	1.2
Johns Hopkins Univ. (Maryland)............	69	0	16	0	85	85	0	0.0
University of Maryland....................	109	0	7	0	116	116	0	0.0
Boston Univ. (Massachusetts)..............	8	0	65	0	73	73	0	0.0
Harvard Medical School....................	57	2	143	0	202	200	2	1.0
Tufts College Med. School.................	26	1	117	0	144	143	1	0.7
University of Michigan....................	30	0	9	2	41	39	2	4.9
Wayne University..........................	75	0	5	0	80	80	0	0.0
University of Minnesota...................	158	2	7	0	167	165	2	1.2
St. Louis University (Missouri)...........	157	4	16	2	179	173	6	3.4
Washington University	109	0	8	0	117	117	0	0.0
Creighton University (Nebraska)...........	54	2	14	0	70	68	2	2.9
University of Nebraska....................	83	2	9	0	94	92	2	2.1
Albany Medical College (N. Y.)............	5	0	48	0	53	53	0	0.0
Columbia University.......................	46	4	123	0	173	169	4	2.3
Cornell University........................	35	1	57	0	93	92	1	1.1
Long Island College of Medicine...........	38	14	93	1	146	131	15	10.3
New York Medical College..................	14	5	93	2	114	107	7	6.1
New York University.......................	52	8	106	0	166	158	8	4.8
Syracuse University.......................	23	7	27	0	57	50	7	12.3
University of Buffalo.....................	3	0	82	0	85	85	0	0.0
University of Rochester...................	25	6	43	0	74	68	6	8.1
Duke University...........................	25	1	66	0	92	91	1	1.1
Bowman-Gray Sch. of Med. (N. C.)..........	47	0	1	0	48	48	0	0.0
Ohio State University.....................	87	3	0	0	90	87	3	3.3
University of Cincinnati..................	101	3	3	0	107	104	3	2.8
Western Reserve University................	91	3	4	0	98	95	3	3.1
University of Oklahoma....................	79	3	1	0	83	80	3	3.6
University of Oregon......................	114	1	4	0	119	118	1	0.8
Hahnemann, Philadelphia (Pa.).............	122	15	26	1	164	148	16	9.8
Jefferson Medical College.................	169	2	15	0	186	184	2	1.1
Temple University.........................	158	8	8	0	174	166	8	4.6
University of Pennsylvania................	127	3	39	0	169	166	3	1.8
University of Pittsburgh..................	82	0	2	0	84	84	0	0.0
Woman's Medical College...................	33	1	15	0	49	48	1	2.0
Med. Coll. of South Carolina..............	55	2	0	0	57	55	2	3.5
Meharry Medical College (Tenn.)...........	35	6	23	2	66	58	8	12.1
University of Tennessee...................	128	2	1	0	131	129	2	1.5
Vanderbilt University.....................	44	0	2	0	46	46	0	0.0
Baylor University (Texas).................	74	3	1	0	78	75	3	3.8
Southwestern Medical College..............	58	0	0	0	58	58	0	0.0
University of Texas.......................	101	1	0	0	102	101	1	1.0
University of Utah........................	7	0	0	0	7	7	0	0.0
University of Vermont.....................	29	2	22	1	54	51	3	5.6
Medical College of Virginia...............	94	0	2	0	96	96	0	0.0
University of Virginia....................	73	0	11	0	84	84	0	0.0
Marquette University (Wisconsin)..........	99	6	16	0	121	115	6	5.0
University of Wisconsin...................	92	0	1	0	93	93	0	0.0
Subtotals: U. S. Schools..............	5,469	173	1,691	17	7,350	7,160	190	2.3
Dalhousie Univ. (Nova Scotia).............	2	0	0	0	2	2	0	0.0
Laval University (Quebec).................	10	7	1	1	19	11	8	42.1
McGill University.........................	42	3	16	0	61	58	3	4.9
Queen's University (Ontario)..............	4	1	0	0	5	4	1	20.0
University of Alberta.....................	5	0	0	0	5	5	0	0.0
University of Manitoba....................	17	0	1	0	18	18	0	0.0
University of Montreal (Quebec)...........	4	1	0	0	5	4	1	0.0
University of Toronto (Ontario)...........	41	5	1	0	47	42	5	10.6
University of Western Ontario.............	10	1	2	0	13	12	1	7.7

TABLE 6.--*Consolidated Examinations, 1947 --Continued*

	Results by Medical Examining Board Tests		Part III Examination of National Board of Medical Examiners		Total Examined	Totals		%F
	P	F*	P	F*		P	F	
Subtotals: Canadian Schools	135	18	21	1	175	156	19	10,9
Foreign Medical Faculties	283	310	11	0	604	294	310	51.3
Extinct Medical Schools	23	5	2	0	30	25	5	16.7
Unapproved Schools	250	185	0	0	435	250	185	42.5
Schools of Osteopathy	214	48	0	0	263	214	48	18.6
Totals	6,374	739	1,725	18	8,856	8,099	757	8.5

*Represents individuals failed.

The total of all examined before medical licensing boards as shown in this table was 7,113, of whom 6,374 passed and 739, 10.5 per cent failed. For both groups--state boards and the National Board--8,856 were examined; 8,099 passed and 757, or 8.5 per cent, failed. The total percentage of failures was not greatly reduced because of the high percentage of failures before state boards of foreign, unapproved and osteopathic graduates. Sixty-two schools in the United States and five in Canada were represented in both state and National Board examinations.

Of the Canadian graduates, 11.8 per cent failed state board tests and 10.9 per cent the combined tests. Only 11 graduates of foreign medical schools were admitted to the National Board's final examination, while 601 were examined by state licensing boards. Two graduates of extinct approved medical schools appeared before the National Board and 28 before state boards. No comparison can be made of these groups. The National Board does not admit to its examinations the graduates of unapproved medical schools or schools of osteopathy, and from foreign schools it admits only the graduates of the university medical schools of Great Britain and Ireland.

FAILURES

Failures before medical licensing boards by licentiates of 1947 are recorded in table 7. In presenting these statistics the United States is divided into two groups--the thirty-one states and the District of Columbia in which approved four year medical schools are located and the states, territories and possessions which have no four year medical school within their boundaries. The figures include the number of licentiates who failed state board examinations and were graduates of a medical school located in the state in which they were examined and, for comparison, the number of graduates licensed in a given state who obtained their professional training in schools in other states.

In general, state licensing boards require the applicant to receive a general average of 75 per cent and 60 per cent in any one subject. In case of failure in not more than two subjects, the applicant is permitted to retake an examination in those subjects within twelve months. A few states consider such persons as conditioned in the subjects in which they fail and do not report them to the office of the Council on Medical Education and Hospitals as failures. In such instances they are not considered in the calculations in this study. When their grades are raised after a successful test in the subjects in which they failed they are recorded among those who passed.

From the first group, 56 physicians failed examinations in the state in which they obtained their professional training. This occurred in nine states. New York reported 39 failures from New York schools. Twenty-three states had no failures from approved schools within their boundaries. On the other hand, seven states reported 94 failures among students who graduated from approved medical schools located in states other than the one in which they were examined. Likewise, in this group New York reported the greatest number, 80. Twenty-one states had no failures in either group, six states had failures in both groups, three states had failures from schools within their state and none from other schools while two had failures from schools in other states only.

In seventeen states having no medical schools, three reported 26 failures--Arizona, Florida and New Jersey. Fifteen of these failures occurred in Florida.

The total examined in the first group—states in which approved four year medical schools are located—was 6,181, while in the second group—states which have no approved four year medical school within their boundaries--943 were examined.

The data pertaining to licensure failures are further subdivided in table 8 by the number of candidates who were licensed after previously failing a licensing examination. The figures are presented for three categories—approved medical schools in the United States and Canada, foreign faculties of medicine and unapproved medical schools and schools of osteopathy. These groups are classified according to the number licensed after failing a state board examination

TABLE 7.--*Licensure Failures by Graduates of Approved Schools Located in the State Where Examined and Elsewhere, 1947*

States with Medical Schools	Total No. Examined	No. Failures from Schools in State	No. Schools in State Represented at Examinations	Per Cent Failed	No. Failures from Schools out of State	No. Schools out of State Represented at Examinations	Per Cent Failed	Per Cent Failed from all U.S. Schools
Alabama	97	0	1	0.0	0	15	0.0	0.0
Arkansas	54	0	1	0.0	0	4	0.0	0.0
California	513	0	4	0.0	1	50	0.2	0.2
Colorado	95	0	1	0.0	0	16	0.0	0.0
Connecticut	66	1	1	1.5	3	17	4.5	6.1
Dist. of Columbia	39	0	3	0.0	0	10	0.0	0.0
Georgia	129	0	2	0.0	0	7	0.0	0.0
Illinois	621	1	4	0.2	1	35	0.2	0.3
Indiana	123	6	1	4.0	5	8	4.1	8.9
Iowa	55	0	1	0.0	0	11	0.0	0.0
Kansas	85	0	1	0.0	0	10	0.0	0.0
Kentucky	90	0	1	0.0	0	4	0.0	0.0
Louisiana	226	0	2	0.0	1	25	0.4	0.4
Maryland	181	0	2	0.0	0	14	0.0	0.0
Massachusetts	224	1	3	0.4	2	18	0.9	1.3
Michigan	116	0	2	0.0	0	20	0.0	0.0
Minnesota	248	0	1	0.0	0	35	0.0	0.0
Missouri	265	0	2	0.0	0	12	0.0	0.0
Nebraska	90	2	2	2.2	0	1	0.0	2.2
New York	1,092	39	9	3.6	80	35	7.3	10.9
North Carolina	114	0	2	0.0	0	17	0.0	0.0
Ohio	300	0	3	0.0	0	15	0.0	0.0
Oklahoma	72	0	1	0.0	0	3	0.0	0.0
Oregon	80	0	1	0.0	0	10	0.0	0.0
Pennsylvania	440	3	6	0.7	0	25	0.0	0.7
South Carolina	55	0	1	0.0	0	6	0.0	0.0
Tennessee	110	0	3	0.0	0	3	0.0	0.0
Texas	295	2	3	0.7	1	13	0.3	1.0
Utah	0	0	0	0.0	0	0	0.0	0.0
Vermont	28	1	1	3.6	0	2	0.0	3.6
Virginia	134	0	2	0.0	0	8	0.0	0.0
Wisconsin	143	0	2	0.0	0	17	0.0	0.0
Subtotals	6,181	56	69	0.9	94	470	1.5	2.4
States Without Medical Schools								
Arizona	22				3	17	13.6	13.6
Delaware	18				0	7	0.0	0.0
Florida	331				15	58	2.7	2.7
Idaho	62				0	31	0.0	0.0
Maine	33				0	12	3.0	3.0
Mississippi	59				0	14	0.0	0.0
Montana	8				0	7	0.0	0.0
Nevada	8				0	7	0.0	0.0
New Hampshire	10				0	5	0.0	0.0
New Jersey	102				6	17	5.9	5.9
New Mexico	1				0	0	0.0	0.0
North Dakota	25				0	8	0.0	0.0
Rhode Island	32				0	10	0.0	0.0
South Dakota	18				0	10	0.0	0.0
Washington	116				0	30	0.0	0.0
West Virginia	40				0	17	0.0	0.0
Wyoming	0				0	0	0.0	0.0
Territories & Poss.	58				2	35	3.4	3.4
Subtotals	943				26	285	2.8	2.8

TABLE 8.—Failures Before Medical Licensing Boards by Licentiates, 1947

	Licenses Issued by Examination, Reciprocity or Endorsement	Approved Schools					Foreign Schools					Unapproved Medical Schools and Schools of Osteopathy					Total Failures by Licentiates, 1947
		Licensed After One Failure		Licensed After Two or More Failures			Licensed After One Failure		Licensed After Two Or More Failures			Licensed After One Failure		Licensed After Two or More Failures			
		Failed in State Where Licensed	Elsewhere	Failed in State where Licensed	Elsewhere	Failed in State where Licensed and Elsewhere	Failed In State Where Licensed	Elsewhere	Failed In State Where Licensed	Elsewhere	Failed in State Where Licensed and Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed and Elsewhere	
Alabama	157	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	3
Arizona	103	2	5	..	1	..	..	..	..	..	..	..	..	..	..	..	[illegible]
Arkansas	92	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
California	1,358	35	18	20	2	3	1	9	1	1	..	..	..	..	..	..	90
Colorado	183	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	3
Connecticut	252	1	3	..	..	2	1	1	..	3	1	..	..	..	..	..	12
Delaware	24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
District of Columbia	256	..	6	..	..	..	..	1	..	1	..	..	..	..	..	..	8
Florida	326	14	3	..	..	..	..	..	..	..	1	..	2	..	1	..	21
Georgia	199	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Idaho	71	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	2
Illinois	904	5	3	1	2	..	1	2	3	1	..	..	..	1	..	..	19
Indiana	264	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Iowa	206	..	4	..	..	..	..	2	..	..	..	..	..	..	..	..	6
Kansas	150	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Kentucky	237	..	1	..	1	..	..	..	..	..	..	..	1	..	1	..	4
Louisiana	325	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	3
Maine	73	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	[illegible]
Maryland	354	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	3
Massachusetts	452	1	6	3	..	..	2	1	..	..	..	9	1	19	..	1	43
Michigan	378	..	5	..	2	..	..	1	..	..	..	..	..	..	..	..	8
Minnesota	420	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	[illegible]
Mississippi	119	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Missouri	415	..	1	..	2	..	..	1	..	1	..	..	..	..	..	..	5
Montana	50	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Nebraska	125	3	..	..	1	..	..	1	..	1	..	..	..	1	..	..	[illegible]
Nevada	19	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
New Hampshire	97	2	4	..	..	..	..	..	..	3	..	..	..	..	..	..	9
New Jersey	378	2	9	..	9	1	1	9	..	1	..	3	..	..	..	..	35
New Mexico	56	..	4	..	1	..	..	..	..	..	..	..	2	..	..	..	7
New York	1,545	57	5	25	..	3	30	..	39	1	9	31	4	11	1	24	240
North Carolina	336	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	[illegible]
North Dakota	53	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Ohio	534	1	7	..	3	..	..	7	..	3	..	1	1	..	2	..	25
Oklahoma	124	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Oregon	200	4	..	1	1	..	..	..	..	..	..	..	1	..	..	..	7
Pennsylvania	650	2	5	..	..	..	..	..	..	..	..	..	..	..	..	..	7
Rhode Island	53	..	1	1	..	..	..	..	..	2	..	..	..	..	..	..	4
South Carolina	95	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
South Dakota	53	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Tennessee	191	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	3
Texas	518	2	13	..	1	1	1	3	..	..	1	2	1	1	..	..	25
Utah	55	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Vermont	53	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Virginia	255	..	5	..	..	..	1	1	..	..	..	..	..	1	2	..	10
Washington	301	..	1	..	1	..	..	..	..	1	..	..	1	..	..	..	4
West Virginia	99	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	4
Wisconsin	297	1	7	..	..	..	..	..	..	..	..	..	..	..	..	..	8
Wyoming	20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
U.S. Territories and Possessions	104	3	4	..	2	..	..	..	..	4	..	..	..	..	..	..	13
Totals	14,429	140	143	51	35	11	38	40	43	24	12	45	14	33	7	25	552

once and after two or more failures, and the table indicates whether the single and multiple failures have been in the state where licensed or elsewhere. The total number of candidates in 1947 examined and licensed or granted licenses by reciprocity or endorsement of credentials is shown as well as the total number of failures in all groups.

In 1947 there were 14,429 licenses to practice medicine issued. Of these, 662 were issued to applicants who had previously been unsuccessful before a licensing board.

In the group representing graduates of approved medical schools, 380 of those licensed had previously failed a state board examination. One hundred and forty had one failure before being licensed in a given state, and 143 were licensed after one failure in a state other than the one in which they were licensed. Of 97 who received licenses after more than one failure, 51 were registered in the original state and 35 elsewhere; 11 had failed both in the state where finally licensed and elsewhere.

TABLE 9.—*Reciprocity and Endorsement*

Marginal Number	The Examining Board of	Reciprocates with, or Endorses Certificates Granted by																														Marginal Number
		Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	
1	Alabama	..	..	+	+	+	..	+	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	..	+	+	1
2	Arizona	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
3	Arkansas (regular board)	+	+	..	+	+	+	..	+	..	+	..	+	+	+	+	+	+	+	+	+	+	..	+	+	..	+	+	..	+	+	3
4	California	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
5	Colorado	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
6	Connecticut (reg. & homeo. bds.)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
7	Delaware (regular board)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
8	District of Columbia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
9	Florida	No reciprocity or endorsement policies											..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
10	Georgia	+	..	+	+	+	..	..	+	..	..	..	..	+	+	+	+	+	+	+	..	+	+	+	+	..	+	+	+	+	+	10
11	Idaho	No reciprocal relations..							..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
12	Illinois	+	..	+	+	+	..	..	..	..	..	..	..	+	+	+	+	+	+	+	..	+	..	+	+	..	+	+	..	+	..	12
13	Indiana	+	..	+	+	+	..	..	+	..	+	..	+[22]	..	+	+	+	+	+	+	..	+	..	+	+	..	+	+	+	+	+	13
14	Iowa	+	..	+	+	+	..	+	+	..	+	..	+	+	..	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	14
15	Kansas	+	+	+[19]	+	..	+	+	+	..	+	..	+	+	+	..	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	15
16	Kentucky	+	..	+	+	+	..	+	+	..	+	..	+	+	+	+	..	+	..	+	..	+	+	+	+	+	+	+	+	+	+	16
17	Louisiana (reg. & homeo. bds.)	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	..	+	+	+	+	+	+	+	..	+	+	+	+	+	17
18	Maine	..	..	+	+	+	..	+	+	..	+	..	+	+	+	+	+	+	..	+	..	+	+	..	+	+	+	+	..	+	+	18
19	Maryland (reg. & homeo. bds.)	+	..	+	+	..	..	..	+	..	+	..	+	+	+	+	+	+	+	..	..	+	+	+	+	+	+	+	+	+	+	19
20	Massachusetts	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	20
21	Michigan	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	21
22	Minnesota	+	+	+	+	+	+	+	..	..	+	..	..	..	+	..	+	+	+	..	+	+	..	+	+	+	+	+	+	+	+	22
23	Mississippi	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	23
24	Missouri	+	..	+	+	..	..	..	..	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	..	..	+	..	..	..	..	24
25	Montana	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25
26	Nebraska	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	26
27	Nevada	..	..	+[21]	+	+	..	..	..	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	..	+	+	..	+	..	..	27
28	New Hampshire	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28
29	New Jersey	+	..	..	+	+	..	..	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	..	..	..	+	..	+	..	..	29
30	New Mexico	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30
31	New York	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31
32	North Carolina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32
33	North Dakota	+	..	+	+	+	..	..	..	..	+	..	+	+	+	+	+	+	+	..	..	+	..	..	+	+	+	+	+	+	+	33
34	Ohio	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	34
35	Oklahoma	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	35
36	Oregon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	36
37	Pennsylvania	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37
38	Rhode Island	..	..	..	..	..	+[14]	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	..	..	..	..	..	..	..	+[14]	..	..	38
39	South Carolina	+	..	..	..	..	..	..	+	..	+	..	..	..	..	+	+	+	+	+	..	+	..	..	..	..	+	..	+	+	..	39
40	South Dakota	+	+	+	+	+	..	..	..	..	+	..	..	+	+	+	+	+	..	..	..	+	+	+	..	+	+	+	..	..	+	40
41	Tennessee	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	..	+	+	+	41
42	Texas	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	42
43	Utah	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	43
44	Vermont	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44
45	Virginia	+	..	+	+	..	..	+	+	..	+	..	..	+	+	+	+	+	+	+	..	+	+	+	..	+	..	..	+	+	+	45
46	Washington	+	..	..	+	+	..	..	..	..	+	..	..	..	+	..	+	+	..	+	..	+	+	+	+	+	+	..	..	..	..	46
47	West Virginia	+	..	+	..	..	..	+	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	..	+	..	47
48	Wisconsin	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	48
49	Wyoming	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49
50	Alaska	+	..	+	+	+	+	..	+	..	..	..	..	+	..	+	+	..	..	+	..	+	+	..	+	..	..	+	+	+	..	50
51	Hawaii	No reciprocal relations..							..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	51
52	Puerto Rico	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	52

This summary should be supplemented by direct communication with the

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Some states have additional requirements for graduates of schools outside the United States and Canada.

+, indicates reciprocal or endorsement relationships have been established; .. indicates no reciprocal or endorsement relationships have been established. (See column—"At the discretion of the board.")

[1] 1st P, first papers required; ⊕, in citizenship column indicates full citizenship required.

[2] In most cases there is a small additional recording or registration fee.

[3] Year of practice after internship required.

[4] Internship accepted in lieu of one year's practice.

[5] Professional practice required.

[6] [illegible] must be graduates of a medical school approved by the

[7] [illegible]

[8] [illegible] must be within the state.

[9] [illegible] by reciprocity or examination in addition to basic science subjects of National Board.

[10] Canadian citizens are required to file first papers.

[11] Leading medical schools of Great Britain recognized.

[12] Oral examination required when original license is ten or more years old.

[13] Applicant must have resided in the state used as basis of application for one year after date on said certificate, or show two years of licensed practice in some other state.

[14] Oral examination required.

[15] Unless in practice in another state for five years.

[16] Actual practice for a period of three years immediately preceding date of application.

[17] Practical, clinical examination required.

[18] Foreign graduates only.

[19] Regular and Homeopathic boards.

[20] Reciprocity is extended to all states which accept Oregon licentiates on reciprocity basis.

[21] Regular board.

[22] Fee same as applicant's state charges if more than $50.

One hundred and fifty-seven graduates of foreign faculties of medicine and 125 graduates of unapproved medical schools and schools of osteopathy were licensed after previous failure. Among those with multiple failures in these two groups were several that had more than five unsuccessful tests before attaining licensure.

In eight states all physicians licensed last year had no failures in a state medical examination.

REGISTRATION BY RECIPROCITY AND ENDORSEMENT

The reciprocity and endorsement policies in effect in the United States, Alaska, Hawaii and Puerto Ricó are summarized in table 9. Florida, Idaho and Hawaii have not established reciprocal agreements with regard to medical licensure. Nevada, which on Aug. 5, 1946 temporarily suspended all reciprocity and endorsement privileges, reinstated this method of licensure in 1947. Idaho and Hawaii

Policies of Medical Licensing Boards

	Reciprocates with, or Endorses Certificates Granted by																							Requirements						
Marginal Number	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska	Puerto Rico	At the Discretion of the Board	National Board of Medical Examiners	Basic Science Certificate	Internship	Professional Practice	Citizenship[1]	Fees, Dollars[2]	Miscellaneous	Marginal Number
1	+	+	+	+	+	+	+	..	+	+	+	+	..	+	+	+	+	+	+	+	..	+[9]	+	..	⊕	1[4]	⊕[44]	50	..	1
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	⊕[5]	..	3[4,7]	⊕	100	[42]	2
3	+	+	+	+	+	+	+	..	+	+	+	..	..	+	+	..	+	+	+	+	..	..	+[9]	⊕	..	1[4]	⊕	50[22]	[42]	3
4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[12]	+[12,43]	..	[41]	1[13]	⊕[45]	100	[43]	4
5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+[9]	⊕	..	1[4]	1st P	50	[42]	6
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[20]	+[27]	⊕[15]	..	3[16]	1st P	50	..	6
7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+[5]	..	⊕	2	⊕	100	..	7
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[3]	+[27]	⊕	⊕	1	..	50	..	8
9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
10	..	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	..	..	..	..	+	..	..	0	⊕	50	..	10
11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	⊕	..	⊕	50	..	11
12	..	+	+	+	+	+	+	..	..	..	+	+	+	+	+	..	+	+	+	+	..	..	+[17]	..	⊕	1	1st P	25	[17,42]	12
13	+	+	+	+	+	+	+	..	..	+	+	+	+	+	+	..	+	+	+	+	..	..	+	..	..	1[4]	..	50	..	13
14	..	+	+	+	+	..	+	..	..	+	+	..	+	..	+	+	+	+	+	..	..	..	+	⊕	⊕	1[4]	⊕[44]	50	..	14
15	..	+	+	+	+	..	+	..	+	+	+	+	+	+	+	..	+	+	+	+	..	..	+	..	..	1[4,7]	⊕	25	[42]	15
16	..	..	..	+	+	..	+	..	+	+	+	+	+	+	+	+	+	+	..	..	..	..	+	..	..	1[4]	⊕	50	[42]	16
17	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	..	..	..	+[25]	..	[33]	1[4]	1st P[40,10]	50[22]	[42]	17
18	..	..	+	+	+	+	+	..	+	..	+	+	+	+	+	..	+	+	+	..	..	..	+[11]	..	⊕[18]	1[4]	⊕[44]	52	..	18
19	+	+	..	+	+	+	+	..	+	..	+	+	..	+	+	..	+	+	..	+	..	+	+	..	..	1[4]	1st P	50	[42]	19
20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	0	1st P	50[28]	..	20
21	..	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+[30]	⊕[37]	⊕	1[4]	⊕	55	[34]	21
22	+	+	..	+	+	+	+	..	..	+	+	..	+	+	+	+	+	+	+	+	..	+	+	⊕	..	0	⊕[44]	75	[17,42]	22
23	..	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	..	..	+	..	..	..	⊕[44]	50	[42,44]	23
24	..	..	+	+	..	..	..	..	..	..	+	..	..	..	..	+	+	+	..	..	..	+	+[32]	..	⊕[33]	1[4]	⊕	50	..	24
25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	⊕	1[4]	⊕	75	42 [44]	25
26	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	..	..	+[36]	⊕	..	1[4]	⊕	50	..	26
27	+	..	..	+	+	+	+	..	..	+	+	..	+	+	..	..	+	+	..	+	..	..	+	..	⊕	1[4]	1st P	100	[14,42]	27
28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	⊕	0	⊕[44]	20	..	28
29	..	..	+	+	+	..	+	..	..	..	..	+	+	+	+	..	+	+	..	..	..	+	+	..	⊕	0	⊕	100	..	29
30	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	⊕	..	1[4]	1st P	50	[42]	30
31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	2	1st P	25	..	31
32	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	0	..	50	[42,6]	32
33	..	+	..	+	+	+	+	..	..	+	..	+	+	+	+	+	+	+	+	+	..	..	+	..	⊕	1	⊕	50[22]	[14,42]	33
34	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	..	..	1[4]	⊕	60	[23]	34
35	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	⊕ 40	⊕	1[4]	⊕	100	[42,44,6]	35
36	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[20,23]	+[9,27]	⊕	⊕	1[4]	⊕	100	[42,4]	36
37	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	⊕	2[24]	1st P	100	[42]	37
38	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	..	..	..	..	..	..	..	+[14]	+[14]	⊕	⊕	0	1st P	20	..	38
39	..	+	..	+	+	+	+	..	..	..	+	+	..	..	+	..	+	..	+	..	..	..	+14	..	..	1[4]	⊕	50	[42]	39
40	..	+	+	+	+	+	..	..	+	..	+	..	+	+	+	+	+	+	+	..	..	..	+	⊕	⊕	1	1st P	50	[42]	40
41	+	+	..	+	+	..	+	..	+	+	..	+	+	..	+	+	+	+	+	..	..	..	+[30]	⊕	..	0	⊕	100	[42]	41
42	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	0	⊕	50	..	42
43	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	⊕	[31]	⊕	50	[42]	43
44	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[3]	+[38]	..	⊕	0	⊕	50	..	44
45	..	+	..	+	+	..	+	..	+	+	+	+	..	+	..	+	+	+	+	..	..	+	+	..	⊕[18]	2[26]	⊕[44]	50	..	45
46	..	..	..	+	+	+	+	..	..	+	+	..	+	+	+	..	..	+	..	+	..	..	+[8]	⊕[9]	⊕	0	..	25	[42]	46
47	..	+	+	+	+	..	+	..	+	+	+	+	+	+	+	..	..	+	+	+	..	..	+	..	⊕	0	⊕	100	[42]	47
48	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	..	+	..	..	+[14]	..	⊕	⊕	1[29]	⊕	50[22]	[43]	48
49	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	+[14]	..	⊕	0	⊕	50	..	49
50	..	+	+	+	+	+	..	..	..	..	+	+	+	+	+	+	+	+	..	..	..	..	+	⊕	⊕	0	⊕	100	[6]	50
51	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	⊕	..	⊕	25	[42,6]	51
52	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[3]	+	..	⊕	1[3]	⊕	25	..	52

secretary of the licensing board of the state in which the physician is interested.

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23 Oral examination required if applicant's state requires it.

24. If the applicant passes the examination in the state from which he transfers after the completion of his internship, no practice is required.

25. License in state with which Louisiana reciprocates required.

26. Internship accepted—considered equivalent to two years' practice.

27. Fee $25.

28. Fee for license on basis of National Board certificate, $25.

29. A two year internship is accepted.

30. Diplomates of National Board not required to have been in practice for three years.

31. Same as required of Utah candidates applying for licensure.

32. Clinical examination required.

33. Reciprocity applicants only.

34. Supplemental examination required in certain cases when accepting the examination of a state with whom reciprocal relations have not been established.

35. May be licensed after a special (written) supplemental examination.

36. Fee $50.

37. For matriculants after Oct. 15, 1937.

38. Fee, $20.

39. Fee, $15.

40 Permanent license withheld until completion of citizenship.

41. Graduates of foreign medical schools effective Sept. 15, 1935. Canadian schools exempted effective Sept. 19, 1939.

42. Graduates of foreign medical schools are not accepted.

43. Graduates of foreign medical schools must have fulfilled all requirements of California prior to admittance to examination for any certificate used as basis of application to California.

44. Not applicable to citizens of Canada.

45. Not required if country in which applicant is licensed will admit to practice citizens of the United States licensed to practice in some state or upon proof of requirements similar to those required by California of graduates of foreign medical schools.

46. Not required for licensure by reciprocity.

TABLE 10.—*Candidates Licensed by Reciprocity and Endorsement*

Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
		Source of Former License or Credentials																																																					
State Issuing License by Reciprocity or Endorsement	Total Licensed	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Govt. Services	National Board of Medical Examiners	Hawaii and Puerto Rico	Canadian & Foreign	Miscellaneous
Alabama	113	..	..	1	2	..	..	1	..	..	8	..	4	..	2	1	2	21	..	2	..	1	1	10	9	..	..	..	..	..	..	..	3	..	5	2	..	5	..	1	..	23	2	..	..	3	..	..	1	..	..	3	..	..	..
Arizona	84	..	..	..	4	2	..	..	..	..	..	..	12	3	2	1	1	1	..	1	1	5	4	..	4	..	..	..	..	1	1	4	..	..	6	2	..	8	..	..	..	1	1	..	2	2	..	1	2	..	..	9	1	2	..
Arkansas	38	..	..	..	..	..	..	..	..	..	1	..	2	3	1	2	..	3	..	1	..	..	1	6	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	12	..	..	..	..	..	..	..	..	..	3	..	..	..
California	1,328	1	2	5	..	15	2	..	..	4	7	3	198	19	14	30	14	19	1	20	6	64	89	3	33	1	33	..	1	12	..	103	7	..	75	12	10	83	3	3	1	35	19	8	..	15	9	4	43	..	56	244	2	..	..
Colorado	88	..	1	..	4	..	1	..	..	..	..	..	6	3	7	7	1	2	..	2	..	1	6	1	7	..	6	..	1	..	..	8	..	..	2	..	..	2	..	..	..	3	4	..	1	..	..	..	2	..	..	9	1	..	..
Connecticut	200	..	..	1	..	..	..	..	..	..	1	..	4	..	1	3	1	1	2	9	4	3	2	..	1	..	1	..	1	3	..	29	2	..	2	..	..	8	..	..	..	2	..	..	3	1	..	1	..	..	..	114	..	..	..
Delaware	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	0	..	..	..
Dist. Columbia	216	1	..	1	7	..	..	1	..	..	1	..	8	2	1	..	..	1	..	25	..	7	..	..	3	..	1	..	..	3	..	15	1	..	7	2	..	11	..	4	..	5	2	..	..	13	..	1	2	..	..	90	1	..	..
Florida	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	..	..	..
Georgia	69	1	..	3	..	..	..	..	1	..	..	..	..	1	..	..	..	4	1	3	..	..	2	2	2	..	2	..	..	3	..	..	3	..	3	..	..	3	..	4	..	6	3	1	..	4	..	..	1	..	..	16	..	..	..
Idaho	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	..	..	..
Illinois	271	..	..	5	14	1	..	..	..	..	..	..	..	13	13	8	1	6	1	4	..	16	1	..	38	..	4	..	..	4	1	..	..	2	20	..	1	10	..	..	..	5	2	..	..	..	..	2	14	..	10	73	..	..	..
Indiana	153	..	..	1	3	..	..	..	..	..	..	..	36	..	2	4	16	3	..	3	..	5	..	..	10	..	4	..	..	2	..	5	..	..	15	1	..	4	..	..	..	8	2	1	..	3	..	5	8	..	..	12	..	..	..
Iowa	112	..	..	1	2	4	..	..	..	..	..	..	9	2	..	10	3	..	1	..	..	3	4	..	7	..	10	..	..	..	..	7	..	..	3	1	..	1	..	..	..	2	..	..	..	..	1	1	7	..	..	33	..	..	..
Kansas	64	..	..	..	3	..	1	..	..	..	..	..	6	1	2	..	..	2	..	1	..	2	..	..	12	..	4	..	..	..	..	..	..	..	4	2	..	2	..	..	..	4	2	..	..	1	..	..	1	..	..	13	..	..	..
Kentucky	65	..	..	..	1	2	..	..	..	..	2	..	3	3	..	1	..	2	1	5	1	1	..	2	2	..	..	..	..	..	..	5	1	..	9	..	..	1	..	3	..	11	..	..	1	3	..	..	..	..	..	5	..	..	..
Louisiana	100	3	..	4	..	1	1	..	..	..	7	..	3	1	2	2	2	..	..	2	..	6	2	8	5	..	2	..	..	1	..	7	3	..	5	..	..	2	..	2	..	10	13	..	..	5	..	..	1	..	..	0	..	..	..
Maine	42	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	36	..	..	..
Maryland	144	1	..	..	6	1	1	..	15	..	1	..	7	1	..	1	3	1	..	..	..	1	..	..	5	..	..	..	..	1	..	16	5	..	4	..	..	12	..	2	..	2	..	1	2	6	..	2	..	..	..	47	..	..	..
Massachusetts	370	1	..	..	2	..	7	..	..	..	..	..	5	..	..	1	..	2	2	7	..	5	4	..	2	1	1	..	4	..	..	22	1	..	5	1	..	8	6	..	..	4	1	..	1	4	..	..	1	..	..	272	..	..	..
Michigan	227	..	..	2	6	..	1	..	1	..	4	..	19	13	6	4	7	4	1	4	1	..	16	1	8	1	8	..	..	..	..	9	5	..	21	4	..	12	..	1	..	10	4	1	..	6	3	..	12	..	..	32	..	..	..
Minnesota	118	..	..	..	4	1	..	..	..	..	1	..	..	..	3	..	..	4	..	2	..	10	..	2	8	..	3	1	1	3	..	4	3	..	4	3	..	8	..	..	3	2	..	..	..	5	2	..	5	..	..	36	..	..	..
Mississippi	60	2	..	..	2	..	1	..	..	..	1	..	2	..	..	1	..	15	..	3	..	2	1	..	4	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	14	2	..	..	2	1	..	2	..	..	2	..	1	..
Missouri	150	..	..	5	4	2	..	..	..	..	1	..	10	5	4	37	5	2	..	3	..	3	5	2	..	..	8	..	..	..	..	2	..	..	6	1	..	4	..	..	..	8	4	..	..	..	..	..	4	..	..	25	..	..	..
Montana	52	..	..	..	1	4	..	..	..	..	..	..	8	..	1	..	..	1	..	..	..	5	12	..	6	..	3	..	..	..	..	2	..	..	..	1	1	4	..	..	..	..	..	1	..	..	2	..	..	..	..	0	..	..	..
Nebraska	38	..	..	..	2	..	..	..	..	..	..	..	5	..	4	..	1	2	..	..	..	..	4	..	1	..	..	..	..	1	..	3	..	..	2	2	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	9	..	..	..
Nevada	11	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..
New Hampshire	77	..	..	..	..	..	1	..	..	..	..	..	1	..	..	1	..	..	6	1	11	1	1	..	1	..	1	..	..	2	..	10	..	..	2	..	..	3	1	..	..	..	..	..	3	1	..	..	1	..	..	27	..	2	..
New Jersey	289	..	..	1	5	..	2	1	..	..	2	..	3	1	..	..	1	6	..	25	2	5	1	..	2	1	..	..	1	..	1	87	3	..	7	..	..	40	1	..	..	5	2	..	..	3	..	..	3	..	..	78	..	..	..
New Mexico	65	..	..	1	1	4	..	..	1	..	..	..	8	..	4	1	..	4	..	2	..	1	..	..	4	..	..	..	..	1	..	3	1	..	5	3	..	5	..	..	..	1	5	..	..	1	..	..	3	..	1	4	1	..	..
New York	1,035	1	..	..	10	3	3	1	1	..	..	..	3	12	3	..	2	23	..	33	2	11	13	..	9	..	6	..	..	68	..	..	3	1	4	..	1	40	..	..	..	8	14	..	2	21	..	..	7	..	..	702	7	19	2
North Carolina	223	3	..	1	3	1	..	..	3	..	17	..	3	1	3	1	5	5	..	14	3	1	1	2	5	..	..	..	..	..	..	8	..	..	13	1	..	12	..	9	..	12	3	..	..	27	..	3	..	..	..	63	..	..	..
North Dakota	28	..	..	..	1	..	..	..	..	..	..	..	4	1	3	1	..	..	..	..	..	3	..	..	2	..	1	..	..	..	..	..	..	..	1	1	..	2	..	..	..	..	..	..	..	..	..	..	1	..	..	7	..	..	..
Ohio	307	..	..	1	2	..	..	..	..	1	1	..	19	7	6	8	13	3	1	12	2	21	5	1	31	..	7	..	..	8	1	32	2	..	..	..	1	28	..	2	..	16	2	..	1	3	..	8	7	..	..	55	..	..	..
Oklahoma	50	..	..	5	..	..	..	..	..	..	..	..	2	1	2	2	1	6	..	3	..	..	..	..	4	..	3	..	..	1	..	..	..	..	5	..	..	2	..	..	..	3	2	..	..	..	..	..	..	..	..	8	..	..	..
Oregon	119	..	..	..	11	4	1	..	..	..	..	..	6	3	6	4	2	1	1	1	..	7	10	..	15	..	10	..	..	..	..	3	1	..	2	2	..	1	..	..	..	1	1	1	..	1	6	..	7	..	..	11	..	..	..
Pennsylvania	210	..	..	..	1	2	4	3	3	..	..	..	6	2	2	1	..	1	2	8	..	10	3	1	5	..	1	..	..	18	..	17	6	..	7	..	..	..	1	2	..	6	1	..	2	5	1	1	3	..	12	64	..	..	9
Rhode Island	19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17	..	..	..
South Carolina	40	1	..	..	..	..	..	..	..	..	12	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	4	..	..	..	4	..	..	..	5	..	..	..	..	..	10	..	..	..
South Dakota	35	..	..	..	1	1	..	..	..	..	..	..	..	1	4	4	2	..	..	..	..	3	1	..	..	1	3	1	..	..	..	..	1	..	1	..	..	..	..	..	..	2	..	..	1	..	..	..	2	..	..	6	..	..	..
Tennessee	55	..	..	1	1	..	..	..	..	..	1	..	3	1	..	1	1	2	..	2	..	1	1	7	1	..	..	..	..	..	..	4	..	..	2	2	..	2	..	3	..	..	2	..	..	2	..	2	..	..	..	13	..	..	..
Texas	336	1	..	..	8	..	..	..	..	..	4	..	39	13	10	10	10	52	1	4	..	10	..	6	16	..	3	..	1	..	..	20	..	1	17	14	..	14	..	1	..	28	..	..	2	8	1	1	6	1	8	26	..	..	..
Utah	23	..	..	..	4	..	..	..	..	..	..	..	2	..	1	..	1	1	..	1	..	1	..	..	3	..	..	..	..	..	..	2	..	..	1	..	1	4	..	..	..	..	..	..	..	..	1	..	..	..	..	0	..	..	..
Vermont	40	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	1	2	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	27	..	5	..
Virginia	136	1	..	..	2	..	..	..	8	..	5	..	..	3	..	1	6	1	..	10	..	2	5	4	3	..	2	..	..	5	..	10	10	..	2	..	..	7	..	2	..	7	2	..	..	..	..	3	..	..	4	31	..	..	..
Washington	185	..	..	..	24	5	..	..	..	..	2	..	..	3	8	..	4	4	..	6	..	8	13	1	23	2	3	..	..	..	..	..	1	..	4	3	12	10	..	..	..	3	..	2	1	6	..	..	4	..	..	33	..	..	..
West Virginia	59	..	..	..	..	1	..	..	..	..	1	..	1	1	2	..	2	..	..	6	..	1	1	..	1	..	..	..	..	..	..	..	1	..	5	..	..	9	..	1	..	2	..	..	..	15	..	..	1	..	..	8	..	..	..
Wisconsin	154	..	..	1	1	..	..	..	..	..	..	..	17	4	4	1	1	2	..	2	..	4	4	..	10	..	..	..	..	..	..	3	1	..	7	..	..	1	..	..	..	..	3	..	..	1	..	..	..	..	87	0	..	..	..
Wyoming	20	..	..	..	..	2	..	..	..	..	..	..	..	..	2	..	2	..	..	..	..	2	..	..	..	..	3	..	..	..	..	2	..	..	1	1	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	3	..	..	..
Alaska, Hawaii, Puerto Rico & Virgin Islands	49	..	..	..	1	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	1	..	4	..	..	..	..	1	3	..	..	1	1	3	..	..	..	1	..	1	..	..	26	..	1	..
Totals	7,682	17	3	41	148	59	27	7	33	5	81	3	465	124	125	149	111	208	21	231	38	235	213	59	304	7	133	2	10	138	4	451	66	4	287	62	28	381	13	40	5	266	101	16	23	175	28	35	155	1	178	2,312	13	30	11
Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55

endorse diplomates of the National Board of Medical Examiners. Florida is the only state which requires a written examination of all applicants for licensure. Those desiring licenses by reciprocity or endorsement in seventeen states, the District of Columbia and Alaska are required to obtain a certificate from the state board of examiners in the basic sciences before being eligible for medical licensure.

Twenty-eight states and Alaska have definite reciprocal agreements with specific states. Thirty states, including ten which have specific reciprocity agreements, and Puerto Rico, are given discretionary powers under the medical practice act. These thirty states will register physicians who present credentials which correspond with those required by their respective states at the time such licenses are issued. The states in which diplomates of the National Board of Medical Examiners are accepted for licensure on the basis of these credentials are also indicated.

Specific requirements, such as professional practice, oral examination and internship, are recorded, as is also the fee for a license without written examination. Citizenship prerequisites are mentioned. In some states physicians of Canadian birth are exempt from the citizenship requirement. This is indicated by footnote. Few states will accept graduates of foreign faculties of medicine on a reciprocal basis. Additional requisites or exemptions are included in footnotes.

This chart will be available in reprint form. It is helpful to physicians who are contemplating locating in another state. The facts recorded in this table are intended to present merely general statements of licensure policies. The information here given should be supplemented by direct communication with the secretary of the licensing board. A list of the executive officers in charge of medical licensure appears elsewhere in this study.

The credentials presented by physicians granted licenses to practice medicine and surgery without written examination are given in table 10. There were 7,682 so registered on the basis of licenses from other states, the District of Columbia, the territories or possessions or foreign countries, the certificate of the National Board of Medical Examiners, also the government services and special exemption. The 7,682 licensed by this method exceeded those so licensed in any previous year except 1946. The number securing licenses by reciprocity or endorsement has been steadily increasing but not to the extent which was evident in 1946 and 1947.

California issued 1,328 licenses by this method and New York registered 1,035. Three other states endorsed more than 300 candidates, namely, Massachusetts, Ohio and Texas. While the number registered was fewer than in 1946, some states issued more by this method of licensure in 1947 than in 1946. The largest number of candidates presenting the same type of credential were the 2,312 diplomates of the National Board of Medical Examiners. On the basis of this certificate 702 were licensed in New York, 272 in Massachusetts and 244 in California.

More than 450 presented licenses in Illinois and New York. The greatest number presenting a like state license were 205 Illinois licentiates who secured licenses in California. Other states registered 130 applicants holding California licenses, while that state registered on credentials 1,328 physicians from other states. In contrast with California, 540 licentiates of Illinois were licensed in other states while it endorsed 271 physicians. Arizona, Idaho, Nevada, New Mexico, North Dakota and South Dakota each had fewer than five licentiates registered in other states last year.

One hundred and seventy-eight medical officers of one of the government services received licenses by endorsement in seven states: California 56, Illinois 10, New York 1, Rhode Island 12, Texas 8, Virginia 4, and Wisconsin 87. Four physicians who were legal residents of Pennsylvania and were qualified to take the state board examination but were prevented from doing so by their service in the armed forces were licensed in Pennsylvania under the provisions of Act 132, approved April 25, 1945. Thirteen physicians were licensed in six states on credentials from one of the possessions of the United States, and sixteen on the basis of Canadian or foreign licenses. The three homeopathic boards licensed 6 physicians by reciprocity—Connecticut 3, Delaware 1 and Maryland 2.

Table 11 records the numbers from individual schools represented by the 7,682 reciprocity licentiates. Every approved medical school in the United States had graduates licensed without examination in 1947. More than 200 graduates of five schools sought such licensure. The distribution of the figures on this table reflects the movement of physicians to states other than the one in which they obtained their professional training.

One hundred and thirty-five graduates of foreign medical schools obtained endorsement of state licenses in twenty-one states and Puerto Rico, and 185 graduates of schools no longer in operation were registered in thirty-three states and Hawaii. The majority of these licentiates were graduates of Rush Medical College, which ceased to teach undergraduate medical students a few years ago. No graduates of unapproved medical schools were accepted for reciprocal registration. The figures include 111 osteopaths licensed in eight states.

TABLE 11.—*Candidates Licensed by.*

Marginal Number	SCHOOL	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Marginal Number
	Marginal Numbers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
	ALABAMA																							
1	Med. Col. of Alabama	.	.	.	1	.	.		.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	1
	ARKANSAS																							
2	Univ. of Arkansas	1	.	.	10	.	1	.	1	.	3	.	5	1	2	1	.	2	.	1	.	2	.	2
	CALIFORNIA																							
3	Col. of Med. Evangelists	.	1	.	36	3	1	.	3	.	.	.	2	1	1	2	.	.	.	6	1	1	1	3
4	Stanford Univ.	.	.	.	9	.	.	.	3	.	.	.	.	1	.	1	.	.	.	1	1	3	3	4
5	Univ. of California	.	.	.	2	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	3	.	.	5
6	Univ. of Southern California	1	1	.	4	1	.	.	.	.	.	.	2	.	.	1	.	.	.	1	.	.	1	6
	COLORADO																							
7	Univ. of Colorado	.	2	.	15	2	.	.	.	.	.	.	1	.	5	1	2	1	.	1	.	.	2	7
	CONNECTICUT																							
8	Yale Univ.	.	.	.	11	.	24	.	5	.	3	.	4	.	.	2	1	2	3	.	5	1	6	8
	DISTRICT OF COLUMBIA																							
9	George Washington Univ.	1	.	.	17	.	4	.	32	.	1	2	1	4	.	1	1	.	1	19	.	1	.	9
10	Georgetown Univ.	.	.	.	10	.	3	.	22	.	1	.	.	.	1	.	.	.	.	11	9	1	1	10
11	Howard Univ.	.	.	.	8	.	1	.	2	.	2	.	1	1	.	.	.	3	.	1	.	4	.	11
	GEORGIA																							
12	Emory Univ.	6	.	2	3	.	1	.	2	.	1	.	.	.	.	.	.	2	.	.	.	2	.	12
13	Univ. of Georgia	1	.	.	5	.	.	.	.	.	.	.	.	.	.	.	1	4	.	1	.	1	1	13
	ILLINOIS																							
14	Loyola Univ.	.	1	.	25	.	1	.	1	.	.	.	4	6	4	1	.	.	.	.	.	.	2	14
15	Northwestern Univ.	3	4	.	45	6	.	.	2	.	1	.	17	10	5	6	2	1	.	2	3	11	6	15
16	Univ. of Chicago	1	1	.	9	4	1	.	1	.	.	.	12	7	3	1	1	.	.	6	1	4	3	16
17	Univ. of Illinois	1	3	1	119	2	1	.	3	.	1	.	18	15	5	.	.	1	1	2	.	8	1	17
	INDIANA																							
18	Indiana Univ.	.	3	2	19	2	.	.	3	.	1	.	8	2	1	1	3	1	.	.	.	13	.	18
	IOWA																							
19	State Univ. of Iowa	3	1	1	17	7	1	.	1	.	.	.	10	2	24	3	.	2	.	.	1	8	4	19
	KANSAS																							
20	Univ. of Kansas	.	1	2	24	6	3	.	.	.	.	.	6	4	6	.	2	2	.	1	1	3	.	20
	KENTUCKY																							
21	Univ. of Louisville	2	2	2	17	1	1	1	1	.	.	.	1	13	3	.	2	2	.	5	.	8	.	21
	LOUISIANA																							
22	Louisiana State Univ.	6	.	1	8	1	1	.	1	.	2	.	1	.	.	.	.	1	.	1	.	1	1	22
23	Tulane Univ. of Louisiana	20	1	3	12	1	.	.	.	.	4	.	4	3	.	2	1	8	.	.	2	3	4	23
	MARYLAND																							
24	Johns Hopkins Univ.	1	3	1	16	3	8	.	8	.	2	.	4	2	1	.	2	1	.	4	7	5	1	24
25	Univ. of Maryland	1	.	.	13	.	2	1	11	.	1	.	1	1	.	1	2	.	.	3	3	2	.	25
	MASSACHUSETTS																							
26	Boston Univ.	.	.	.	10	.	8	1	.	.	.	.	.	1	.	.	1	.	8	3	45	1	1	26
27	Harvard Med. Sch.	.	1	.	22	1	12	.	3	.	2	.	9	1	.	6	2	.	3	3	68	4	7	27
28	Tufts Col.	.	.	.	22	.	11	.	4	.	.	.	4	1	.	1	2	.	13	.	95	.	1	28
	MICHIGAN																							
29	Univ. of Michigan	1	2	.	30	2	2	.	6	.	.	.	8	4	3	1	1	4	.	1	2	3	4	29
30	Wayne Univ.	.	2	.	34	.	.	.	2	.	.	.	3	1	.	.	.	2	.	1	3	.	2	30
	MINNESOTA																							
31	Univ. of Minnesota	1	1	.	76	5	2	.	.	.	.	.	8	1	2	.	1	.	.	1	2	16	4	31
	MISSOURI																							
32	St. Louis Univ.	.	3	.	33	3	2	.	2	.	.	.	23	5	2	5	.	.	1	2	1	4	7	32
33	Washington Univ.	8	1	1	17	2	1	.	3	.	2	.	20	3	3	3	1	5	.	3	2	3	1	33
	NEBRASKA																							
34	Creighton Univ.	.	3	.	16	4	.	.	.	.	.	.	4	.	7	2	.	1	.	.	1	4	1	34
35	Univ. of Nebraska	.	1	.	29	4	1	.	1	2	.	.	6	4	7	4	.	1	.	.	3	7	3	35
	NEW YORK																							
36	Albany Med. Col.	.	.	.	5	1	4	1	1	.	.	.	1	.	.	.	.	.	.	.	3	1	.	36
37	Columbia Univ.	.	2	1	26	5	21	.	2	.	1	1	3	.	1	3	.	.	1	4	15	2	2	37
38	Cornell Univ.	.	.	1	12	2	3	.	3	.	.	.	1	.	1	.	.	1	.	3	4	2	.	38
39	Long Island Col.	.	.	.	15	1	11	.	1	.	1	.	1	2	.	.	2	.	1	1	5	3	2	39
40	New York Med. Col.	.	1	.	13	.	7	.	4	.	1	.	1	.	.	.	.	.	.	.	5	1	2	40
41	New York Univ.	.	4	.	43	1	8	.	5	.	1	1	2	1	2	.	1	1	.	5	7	1	2	41
42	Syracuse Univ.	.	1	.	7	1	1	.	.	.	.	.	.	1	.	.	.	.	.	1	5	1	.	42
43	Univ. of Buffalo	.	2	.	16	.	2	.	.	.	.	2	6	1	1	.	.	.	1	2	1	5	1	43
44	Univ. of Rochester	.	.	.	10	.	2	.	1	.	.	1	1	2	2	.	1	2	.	2	5	1	.	44
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	

	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50		
Marginal Number	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska, Hawaii and Puerto Rico	Totals	Marginal Number
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	1
2	.	5	.	.	.		3	.	2	1	.	1	4	.	.	.	.	.	1	3	.	.	1	.	.	1	.	.	52	2
3	1	1	3	1	.	.	1	.	4	2	1	3	.	5	.	.	.	.	2	3	.	.	7	9	2	.	1	5	105	3
4	.	.	.	.	2	.	.	.	2	.	.	.	.	1	.	.	.	.	1	.	.	.	.	6	.	.	.	.	34	4
5	1	1	.	.	.	.	2	.	3	1		.	.	1	1	.	.	.	.	.	2	.	1	2	.	3	.	.	24	5
6	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	13	6
7	.	1	4	1	.	.	.	4	4	.	.	.	.	3	2	.	.	.	.	1	.	1	1	4	1	.	1	1	61	7
8	.	1	.	.	.	2	3	1	17	1	1	3	2	.	6	2	.	.	.	2	.	4	2	1	.	.	.	1	116	8
9	.	2	.	.	.	.	3	1	9	3	.	5	.	.	3	.		.	.	3	.	.	25	3	.	4	.	1	137	9
10	.		1	1	1	1	5	1	17	.	.	2	1	1	5	1	1	.	1	1	.	.	9	3	.	.	1	1	113	10
11	1	1	.	.	.	.	6	.	5	2	.	3	1	.	2	.	1	.	.	.	.	.	6	.	.	1	.	2	54	11
12	1	1	.	.	.	.	2	.	2	8	.	1	.	.	.	.	5	.	1	2	.	.	2	.	.	.	.	.	42	12
13	.	.	.	.	.	.	.	.	.	8	.	.	.	.	.	.	6	.	.	1	.	.	3	1	.	.	.	.	33	13
14	1	1	1	.	.	.	1	2	4	1	1	4	1	.	.	.	.	.	.	6	.	.	.	2	1	4	.	1	36	14
15	1	4	4	2	.	.	2	3	4	1	.	5	2	3	2	.	.	4	1	13	1	.	2	8	1	11	.	1	199	15
16	.	.	2	3	.	.	.	1	1	1	.	3	.	1	1	.	.	.	1	5	.	.	.	2	.	4	.	1	81	16
17	2	.	4	1	1	.	.	4	3	2	3	3	.	3	3	.	.	.	3	16	1	.	3	4	.	17	.	.	255	17
18	.	4	.	.	.	.	2	.	13	1	1	6	.	3	1	.	.	.	1	11	.	.	.	.	.	.	.	.	109	18
19	.	3	1	1	.	.	.	2	5	3	2	5	2	6	.	.	.	2	.	9	1	.	.	5	2	4	1	.	139	19
20	.	36	.	.	.	1	.	1	.	1	1	5	1	3	1	.	.	3	1	7	.	.	1	.		1	.	.	123	20
21	1	6	.	1	.	.	1	1	4	4	.	11	1	2	1	.	1	2	1	9	1	.	5	4	2	4	2	.	125.	21
22	11	.	.	.	.	.	.	.	3	1	1	.	1	.	.	.	1	.	.	11	1	.	.	1	.	1	.	.	67	22
23	4	2	.	1	.	.	5	4	17	6	.	3	5	1	1	.	.	.	4	41	.	.	3	2	1	1	.	.	169	23
24	1	2.	.	1	.	1	4	.	19	9	.	6	1	.	5	.	2	1	3	.	1	.	3	6	.	1	.	1	136	24
25	2	1	.	.	.	2	14	2	16	2	.	8	2	1	5		1	.	.	4	.	1	6	1	6	1	.	.	117	25
26	.	1	.	.	.	6	1	.	13	2	.	1	.	.	1	1	.	.	.	2	.	.	.	.	1	.	.	5	113	26
27	.	6	.	1	.	9	3	1	31	12	.	6	.	4	10	2	.	1	1	3	1	1	2	7	.	3	2	1	251	27
28	.	1	.	.	.	7	2	.	17	3	.	2	.	2	1	7	1	.	.	1	.	2	.	.	1	2	.	.	203	28
29	2	2	2	.	.	1	4	.	14	1	3	16	.	4	7		.	1	.	5	1	1	1	5	.	6	1	.	153	29
30	.	1	.	.	.	.	2	.	2	.	.	5	.	.	2	.	.	.	.	2	.	.	.	1	.	2	.	.	67	30
31	1	5	6	1	.	.	1	.	11	2	1	6	.	5	1	.	.	.	1	1	.	.	2	10	1	8	.	.	183	31
32	2	2	2	2	1	.	3	1	11	.	1	20	2	4	6	1	.	1	.	7	2	.	3	16	1	4	.	2	186	32
33	1	3	4	1	.	1	.	3	3	4	2	7	2	3	1	.	.	1	1	8	1	.	.	7	.	4	.	.	136	33
34	.	5	4	9	.	.	1	1	5	.	.	2	.	.	1	.	.	3	:	4	2	.	.	5	.	2	1	.	88	34
35	.	5	2	.	.	1	1	1	4	.	1	6	3	9	2	.	.	3	.	1	1	.	2	1	.	1	3	.	119	35
36	.	1	.	.	.	1	2	.	47	2	.	.	1	.	1	.	.	.	1	.	.	.	.	1	.	1	.	.	75	36
37	1	2	2	.	.	3	15	.	78	3	.	4	.	2	5	2	2	.	1	2	.	.	1	.	.	1	.	2	215	37
38	.	1	.	.	.	2	6	1	34	1	.		.	.	.	5	.	.	.	3	2	.	1	1	.	.	1	.	92	38
39	.	.	.	1	.	2	19	2	68	1	.	8	.	.	4	.	.	.	.	1	1	2	.	1	.	1	.	1	159	39
40	.	.	.	.	.	.	17	.	74	1	1	3	.	.	2	.	.	2	.	1		1	.	.	.	2	1	2	142	40
41	.	4	1	2	1	5	25	1	97	1	.	5	.	1	6	.	.	.	2	5	.	1	2	.	1	2	.	.	246	41
42	.	.	.	.	.	1	3	1	18	.	3	.	.	2	.	.	.	.	.	.	.	.	4	1	.	.	.	.	51	42
43	.	.	.	.	.	1	2	.	73	2	1	4	.	.	6	.	.	.	.	3	.	.	1	2	.	1	.	.	139	43
44	.	.	.	.	.	2	.	3	29	2	.	2	.	2	1	.	.	.	.	2	1	.	.	.	.	.	.	.	74	44
	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50		

TABLE 11.—*Candidates Licensed*

Marginal Number	SCHOOL	1 Alabama	2 Arizona	3 Arkansas	4 California	5 Colorado	6 Connecticut	7 Delaware	8 Dist. of Columbia	9 Florida	10 Georgia	11 Idaho	12 Illinois	13 Indiana	14 Iowa	15 Kansas	16 Kentucky	17 Louisiana	18 Maine	19 Maryland	20 Massachusetts	21 Michigan	22 Minnesota	Marginal Number
	NORTH CAROLINA																							
45	Bowman Gray Sch. of Med.	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	45
46	Duke Univ.	2	1	.	8	.	6	.	6	.	8	.	2	1	.	.	1	.	1	1	5	3	2	46
	OHIO																							
47	Ohio State Univ.	1	.	.	20	.	1	.	2	.	1	.	4	3	.	1	.	2	1	.	1	5	1	47
48	Univ. of Cincinnati	3	.	.	16	.	.	.	3	.	.	.	6	5	1	1	8	1	.	1	2	7	.	48
49	Western Reserve Univ.	.	4	.	22	1	.	.	2	.	1	.	7	4	1	.	.	1	.	1	1	8	3	49
	OKLAHOMA																							
50	Univ. of Oklahoma	2	2	.	12	2	.	.	2	.	.	.	.	2	1	3	.	.	.	.	2	4	4	50
	OREGON																							
51	Univ. of Oregon	.	.	.	15	1	.	.	.	.	.	1	.	.	1	.	.	.	.	.	.	1	.	51
	PENNSYLVANIA																							
52	Hahnemann Med. Col.	3	1	.	16	1	1	1	2	.	.	.	3	4	1	.	.	1	.	4	4	1	.	52
53	Jefferson Med. Col.	1	3	.	22	1	3	.	5	.	1	.	7	1	.	1	1	4	2	3	2	3	2	53
54	Temple Univ.	2	1	.	13	1	3	.	3		2	.	5	1	.	1	.	1	.	5	2	1	4	54
55	Univ. of Pennsylvania	2	1	1	36	.	4	.	4	.	1	.	3	1	.	1	.	2	2	4	10	5	7	55
56	Univ. of Pittsburgh	.	1	.	29	.	1	.	3	.	.	.	.	.	1	.	1	1	.	2	1	1	.	56
57	Woman's Med. Col. of Pennsylvania.	.	1	.	2	.	1	.	1	.	.	.	1	1	.	.	.	.	.	.	.	2	.	57
	SOUTH CAROLINA																							
58	Med. Col. of South Carolina	.	.	.	5	.	1	.	5	.	.	4	.	.	.	.	3	2	.	.	1	1	.	58
	TENNESSEE																							
59	Meharry Med. Col.	6	.	.	19	.	1	.	3	.	1	4	.	6	.	2	2	1	.	4	.	5	.	59
60	Univ. of Tennessee	13	.	15	14	.	.	.	2	.	4	.	1	.	1	1	5	9	.	.	1	4	.	60
61	Vanderbilt Univ.	10	.	2	7	3	1	.	1	.	2	.	1	1	1	1	7	3	.	1	2	4	2	61
	TEXAS																							
62	Baylor Univ.	2	1	2	1	.	.	.	1	.	1	.	1	.	.	1	.	4	.	.	1	2	.	62
63	Southwestern Med. Col.	.	.	.	4	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	63
64	Univ. of Texas	.	.	.	12	1	.	.	.	.	1	.	1	1	.	.	.	8	.	.	.	2	.	64
	UTAH																							
65	Univ. of Utah	.	1	.	2	1	9	.	1	.	.	.	1	.	.	.	1	.	1	3	6	1	.	65
	VERMONT																							
66	Univ. of Vermont	.	1	.	2	1	9	.	1	.	.	.	1	.	.	.	1	.	1	3	6	1	.	66
	VIRGINIA																							
67	Med. Col. of Virginia	1	3	.	8	.	.	.	3	.	.	.	1	1	.	.	3	1	.	2	2	3	5	67
68	Univ. of Virginia	3	1	1	9	1	.	.	7	.	4	.	1	1	.	.	.	3	.	3	3	1	.	68
	WISCONSIN																							
69	Marquette Univ.	.	2	.	28	1	.	.	1	.	.	1	5	6	1	.	.	.	.		1	8	4	69
70	Univ. of Wisconsin	.	2	.	16	1	.	.	2	.	.		5	4	2	1	.	1	.	.	.	2	2	70
	CANADA																							
71	Dalhousie Univ.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	71
72	Laval Univ.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	72
73	Mc Gill Univ.	.	1	.	17	.	6	.	.	.	.	.	2	.	.	1	.	1	2	3	6	1	3	73
74	Queen's Univ.	.	.	.	.	.	1	.	.	.	.	.	.	1	.	.	.	1	.	.	.	.	.	74
75	Univ. of Alberta	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	75
76	Univ. of Manitoba	.	2	.	1	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	1	.	.	76
77	Univ. of Montreal	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	77
78	Univ. of Toronto	.	.	.	10	.	.	.	1	.	.	.	2	.	.	.		.	.	.	2	1	.	78
79	Univ. of Western Ontario	.	.	.	4	.	.	.	1	.	.	.	.	.	.	.	.	.	.	2	.	1	.	79
	OTHERS																							
80	Foreign Med. Faculties	1	2	1	7	.	10	.	5	.	.	.	.	1	4	.	.	.	.	2	1	1	.	80
81	Extinct Med. Sch.	2	6	.	57	1	.	1	6	.	2	.	5	7	4	.	3	2	.	4	2	7	1	81
82	Unapproved Med. Schools	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	82
83	Schools of Osteopathy	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	83
	Total	113	84	38	1328	88	200	6	216	0	69	9	271	153	112	64	65	100	42	144	370	227	118	
	Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	

by Reciprocity and Endorsement, 1947

	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50		
Marginal Number	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska, Hawaii and Puerto Rico	Totals	Marginal Number
45	.	.	.	.	.	.	2	.	1	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	6	45
46	1	1	.	.	1	.	4	.	10	39	.	2	2	.	3	.	5	.	4	2	.	.	5	1	2	.	.	1	129	46
47	1	2	.	1	1	1	2	3	1	3	.	.	1	.	1	.	.	.	.	4	1	.	1	1	3	.	.	.	70	47
48	.	3	.	.	.	1	1	.	4	4	.	4	.	.	4	.	.	1	1	3	.	.	1	1	.	3	.	.	85	48
49	.	.	1	.	.	.	.	1	3	2	1	1	2	1	1	.	.	.	1	3	.	.	1	1	1	1	1	.	78	49
50	1	1	1	1	.	.	1	3	.	2	1	1	2	2		.	.	.	2	15	..	.	.	3	.	1	1	..	74	50
51	.	1	1	.	.	.	.	.	1	.	.	.	.	16		.	.	.	.	1	.	.	.	15	1	.	.	1	56	51
52	.	.	.	.	.	.	27	1	13	1	.	5	1	.	28	.	.	.	.	.	.	.	.	.	1	2	.	.	122	52
53	.	.	.	.	.	2	15	1	10	4	.	9	2	1	14	.	.	1	.	5	.	.	4	3	3	1	.	2	139	53
54	.	2	.	.	1	1	9	.	6	4	2	3	.	.	10	.	1	1	1	2	.	.	2	4	1	1	.	2	98	54
55	1	.	1	.	1	1	12	2	14	5	.	10	.	2	19	.	1	1	1	2	.	4	4	4	5	.	.	2	176	55
56	1	.	.	.	.	.	3	1	6	1	.	8	.	.	2	.	1	.	1	5	.	.	1	.	1	.	.	.	72	56
57	1	.	.	.	.	1	1	.	5	1	.	2	.	.	2	.	1	.	.	.	.	1	1	.	.	.	.	.		57
58	.	.	.	.	.	.	.	.	.	8	1	2	.	1	2	.	.	.	3	1	.	.	3	.	1	1	.	.	25	58
59	1	5	.	.	.	.	5	.	11	5	.	8	.	.	3	.	1	.	1	5	.	.	1	.	1	.	.	1	45	59
60	9	6	.	.	.	.	.	1	.	4	.	3	2	.	.	.	1	1	3	16	.	.	9	2	1	.	.	1	129	60
61	5	2	.	.	.	.	.	.	2	7	.	5	.	1	2	.	3	.	1	16	.	.	3	1	.	.	.	.	97	61
62	1	.	.	.	.	.	1	2	4	3	.	.	.	.	1	.	.	.	1	3	.	.	.	.	.	.	.	1	34	62
63	.	.	.	.	.	.	.	.	1	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	7	63
64	1	3	2	.	.	.	1	2	7	.	.	2	1	1	2	.	.	.	1	.	.	.	1	1	.	2	.	2	56	64
65	.	.	.	1	.	4	.	.	12	.	.	1	.	.	2	1	.	1	.	2	1	18	.	1	.	1	.	.	5	65
66	.	.	.	1	.	4	.	.	12	.	.	1	.	.	2	1	.	1	.	2	1	18	.	1	.	1	.	.	71	66
67	.	.	.	1	.	.	1	.	15	19	.	4	1	1	1	.	2	.	3	2	.	.	1	4	88	1	1	.	98	67
68	1	.	.	.	.	1	3	1	7	9	.	3	.	.	2	.	2	.	.	7	.	1	2	2	7	.	.	.	86	68
69	2	2	1	1	1	1	2	1	6	.	.	5	.	4	2	.	.	1	.	2	.	.	.	5		114	1	1	111	69
70	.	2	.	.	1	.	1	1	5	.	.	1	.	.	2	.	.	1	.	3	.	.	1	1	1	13	1	1	73	70
71	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	1	.	.	7	71
72	.	.	.	.	.	2	1	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5	72
73	1	.	.	.	.	.	2	.	5	4	.	3	.	.	.	2	.	.	1	4	.	1	2	3	.	.	.	.	71	73
74	.	.	.	.	.	.	.	.	2	.	.	1	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	1	7	74
75	1	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	75
76	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	1	.	1	.	.	.	.	8	76
77	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	2	77
78	.	1	.	.	.	.	.	.	2	1	.	3	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	24	78
79	.	.	.	.	.	1	.	.	.	1	.	.	1	1	.	.	.	.	.	.	.	.	.	.	.	1	.	.	13	79
80	.	.	.	1	.	6	24	.	18	.	.	26	.	.	.	1	.	.	.	13	.	1	4	3	.	.	.	3	135	80
81	.	7	2	2	.	2	6	4	4	2	1	7	2	2	4	.	.	1	.	29	.	.	.	3	.	5	.	1	185	81
82	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	82
83	.	.	.	.	.	3	2	.	.	75	.	10	.	.	16	.	.	.	.	.	.	.	.	.	.	3	.	.	111	83
	60	150	52	38	11	77	289	65	1,035	223	28	307	50	119	210	19	40	35	55	336	23	40	136	185	59	154	20	49	7,682	84
	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50		

The American Council on Education, representing higher education in this country, has carefully evaluated the content and quality of the many courses given in both these categories. It has issued the "Guide to the Evaluation of Educational Experiences in the Armed Forces" to assist colleges desiring to do so to award high school and college credit for specific courses taken in this program.

In addition to awarding credit for courses actually taken, as already described, there is a program for evaluating a veteran's learning experiences while in the armed forces by administering "general educational development tests" and awarding appropriate credit at the high school and college levels on the basis of the examination results, even though formal course work in the subject matter of the examination was not taken by the candidate. These are comprehensive examinations developed by the Armed Forces Institute and sponsored by the American Council on Education.

The Council on Medical Education and Hospitals has agreed to these recommendations in principle in the following statement:

TABLE 15.—*Requirements of Premedical Training by Medical Licensing Boards*

Two Years or More of College

Alabama
Alaska
Arizona
Arkansas
Canal Zone
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Puerto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virgin Islands
Virginia
Washington
West Virginia
Wisconsin
Wyoming

One Year of College

California

High School and College Credit for Veterans

A. Courses at the high school and college level have been offered to members of the armed forces,

1. by correspondence through the "Armed Forces Institute," which operates in collaboration with colleges and universities, and
2. in classroom work in various schools operated for men and women in the armed services.

The American Council on Education, representing higher education in this country, has carefully evaluated the content and quality of the many courses given in both these categories. It has issued the "Guide to the Evaluation of Educational Experiences in the Armed Forces" to assist colleges desiring to do so to award proper high school and college credit for specific courses taken in this program.

B. In addition to awarding credit for courses actually taken, as described in A, there is a program for evaluating a veteran's knowledge in a given field [illegible] "General Educational Development [illegible] appropriate credit at the high school and college levels on the basis of the examination results, even though formal course work in the subject matter of the examination was not taken by the candidate. These are comprehensive examinations developed by the Armed Forces Institute and sponsored by the American Council on Education.

C. The Council on Medical Education and Hospitals of the American Medical Association (*a*) has confidence in the American Council on Education and its "Guide to the Evaluation of Educational Experiences in the Armed Forces," in the Armed Forces Institute and in the General Educational Development tests and (*b*) wishes to support sound procedures permitting veterans to commence their education in civilian institutions at a level commensurate with their ability and knowledge. Therefore the Council has decided that approved medical schools desiring to accept students at the freshman level partially on the basis of high school or college awarded credit as described in A and B will not be in conflict with the Council's regulations and policies, except that college credit for science courses requiring laboratory work should not be allowed on this basis, nor should blanket credit be allowed for military service not based on courses or examinations. Specifically, a medical college may accept, in partial fulfilment of premedical requirements:

1. High school credits, based on
   (*a*) Courses taken from the Armed Forces Institute or in service courses of the armed forces according to the "Guide to the Evaluation of Educational Experiences in the Armed Forces."
   (*b*) Performance in the General Educational Development Tests; such credit may include the equivalent of a complete high school course.

2. College credits (except in science courses requiring laboratory work, or except blanket credits for military services not based on courses or examinations), based on
   (*a*) Courses taken from the Armed Forces Institute or in service courses of the armed forces according to the "Guide to the Evaluation of Educational Experiences in the Armed Forces."
   (*b*) Performance in the General Education Development Tests.

The licensing boards of all but four states have indicated that the awarding of premedical credits under this plan by approved medical schools as the equivalent of the required premedical training will satisfy the requirement for licensure.

The Army Specialized Training and Navy V-12 premedical programs called for less than two years of college training, but in both these programs the studies were continuous and provided for the student carrying more than the normal peacetime studies per semester. Both the Army and Navy programs provided for work well in excess of the sixty semester hours constituting the normal two academic years of medical study. The information received from these states whose licensure laws include specific premedical requirements seems to indicate that there should be no licensure difficulties encountered by students whose premedical work was taken under the Army Specialized Training or Navy V-12 or comparably accelerated civilian programs.

TABLE 16.—*Professional Educational Requirements by Medical Licensing Boards*

	Length of Medical School Academic Year						Total Time Spent in Medical School (Registration to Graduation)						
	Hours	Weeks	Months	Same as Approved Medical Schools	Same as A.A.M.C. & C.M.E. & H.*	Not Specified By Board	Hours	Weeks	Months	Years	M.D. Degree	Same as Approved Medical Schools	Same as Approved A.A.M.C. & C.M.E. & H.*
Alabama	..	..	9	..	..	..	..	..	..	..	X	..	..
Arizona	..	..	...	..	X	..	..	..	..	..	..	..	X
Arkansas	..	..	..	..	..	X	..	..	..	4	..	..	..
California	..	32	..	..	..	..	4,000	..	..	..	..	..	..
Colorado	..	...	..	..	..	X	..	..	..	..	X	..	..
Connecticut	..	32	..	..	..	..	..	128	..	..	..	..	..
Delaware	..	..	..	..	..	X	..	..	..	..	X	..	..
District of Columbia	..	..	9	..	..	..	..	..	..	4	..	..	..
Florida	..	..	..	..	..	X	..	..	..	..	X	..	..
Georgia	..	..	9	..	..	..	..	..	..	4	..	..	..
Idaho	..	..	9	..	..	..	..	..	..	4	..	..	..
Illinois	..	..	9	..	..	..	..	..	40	..	..	..	..
Indiana	..	..	..	..	..	X	..	..	42	..	..	..	..
Iowa	..	..	9	..	..	..	..	..	..	4	..	..	..
Kansas	..	..	..	..	..	X	..	..	..	4	..	..	..
Kentucky	..	..	9	..	..	..	..	..	..	4	..	..	..
Louisiana	..	..	..	..	X	..	..	..	..	..	X	..	X
Maine	..	36	9	..	..	..	..	..	..	4	..	..	..
Maryland	..	..	..	X	..	..	..	..	..	4	..	X	..
Massachusetts	..	32	..	..	..	..	..	128	..	..	..	..	..
Michigan	..	32	..	..	..	..	..	..	36	..	..	..	..
Minnesota	..	36	..	..	..	..	..	..	..	4	..	..	..
Mississippi	..	32	..	..	..	..	..	..	..	4	..	..	..
Missouri	..	32	..	..	..	..	..	..	..	4	..	..	..
Montana	..	..	..	X	..	..	..	..	..	..	X	X	..
Nebraska	..	..	8½	..	..	..	..	..	34	..	..	..	..
Nevada	900-1100	..	9	..	..	..	..	..	..	4	..	..	..
New Hampshire	..	..	..	..	..	X	..	..	..	4	..	..	..
New Jersey	..	..	8	..	..	..	..	..	..	4	..	..	..
New Mexico	..	...	..	X	..	..	..	..	..	..	X	X	..
New York	..	..	8	..	..	..	..	..	..	4	..	..	..
North Carolina	..	..	9	..	..	..	..	..	..	..	..	..	X
North Dakota	..	..	..	..	..	X	..	..	..	4	..	..	..
Ohio	..	..	9	..	..	..	..	..	..	4	..	..	..
Oklahoma	..	..	9	..	..	..	..	..	..	4	..	..	..
Oregon	..	..	8	..	..	..	..	..	..	4	..	..	..
Pennsylvania	1,120	32	..	..	..	..	..	..	..	4	..	..	..
Rhode Island	..	..	..	..	..	X	..	..	..	..	X	..	..
South Carolina	..	..	..	X	..	..	..	..	..	..	X	X	..
South Dakota	..	..	8	..	..	..	..	..	..	4	..	..	..
Tennessee	..	36	..	..	..	..	..	..	..	4	..	..	..
Texas	..	..	8	..	..	..	..	..	..	4	..	..	..
Utah	..	..	9	..	..	..	..	..	..	4	..	..	..
Vermont	900	..	..	..	..	..	..	..	..	4	..	..	..
Virginia	..	32	8	..	..	..	..	..	..	4	..	..	..
Washington	..	..	9	..	..	..	..	..	..	4	..	..	..
West Virginia	..	..	..	..	..	X	..	..	..	..	X	X	..
Wisconsin	..	..	..	..	..	X	..	..	..	4	..	..	..
Wyoming	..	..	9	..	..	..	..	..	..	4	..	..	..
Alaska	..	..	..	..	X	..	..	..	..	..	..	X	..
Canal Zone	..	..	..	X	..	..	..	..	..	..	X	X	..
Hawaii	..	..	..	..	X	..	..	..	..	..	..	..	..
Puerto Rico	..	..	..	..	X	..	..	..	..	..	..	..	X
Virgin Islands	..	36	..	..	..	..	..	..	..	X	..	..	..

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* Association of American Medical Colleges and Council on Medical Education and Hospitals of the American Medical Association.

PROFESSIONAL EDUCATIONAL REQUIREMENTS BY LICENSING BOARDS

The regulations of several of the state medical boards state in terms of hours, weeks or months the length of the medical school academic year. Similarly, some states specify in these terms the total time which must be spent in medical school. Table 16 outlines the requirements of each state in this respect. In presenting this table it should be remembered that in addition to these regulations an internship is required for licensure in some states. (See table 19.)

TABLE 17.—*Schedule of Written Examination Dates and Issuance of Licenses by Reciprocity or Endorsement of Credentials*

	Written Examination	Licenses by Reciprocity or Endorsement Issued
Alabama	Once annually	Considered by Subcommittee on application
Arizona	Quarterly	Quarterly
Arkansas	June and November	Continuously
California	Feb., June, Aug., Oct.	Six meetings annually to consider applications
Colorado	Jan. and July	Quarterly
Connecticut	Mar., July and Nov.	Continuously
Delaware	Jan. and July	Jan. and July
District of Columbia	Semi-annually	Quarterly
Florida	June and Nov.	None
Georgia	June and Oct.	June and Oct.
Idaho	Jan. and July	Jan. and July
Illinois	Quarterly	Quarterly
Indiana	Once annually	Every 6 weeks
Iowa	June and Dec.	Every 3 months
Kansas	Semi-annually	Semi-annually
Kentucky	Semi-annually	Continuously
Louisiana	June and Dec.	June and Dec.
Maine	Mar., July and Nov.	Mar., July and Nov.
Maryland	June and Dec.	Every 3 weeks
Massachusetts	Three times annually	Every month
Michigan	June and Oct.	Continuously
Minnesota	Quarterly	Quarterly
Mississippi	June	June and Dec.
Missouri	Semi-annually	Four to six times annually
Montana	Semi-annually	Semi-annually
Nebraska	Semi-annually	Continuously
Nevada	Semi-annually	Semi-annually
New Hampshire	Mar. and Dec.	Mar. and Dec.
New Jersey	June and Oct.	August
New Mexico	Semi-annually	Semi-annually
New York	Three times annually	Continuously
North Carolina	June	Five times annually
North Dakota	Jan and July	Jan. and July
Ohio	June and Dec.	Quarterly
Oklahoma	Once annually	Continuously
Oregon	Jan. and July	Quarterly
Pennsylvania	Jan. and July	Monthly
Rhode Island	Quarterly	Quarterly
South Carolina	June and Nov.	Monthly
South Dakota	Semi-annually	Semi-annually
Tennessee	Every 3 months	Continuously
Texas	June and Nov.	June and Nov.
Utah	Once annually	Quarterly
Vermont	Semi-annually	Continuously
Virginia	Semi-annually	Semi-annually
Washington	Semi-annually	Semi-annually
West Virginia	Quarterly	Quarterly
Wisconsin	Jan. and June	Jan. and June
Wyoming	Three times annually	Continuously
Alaska	Mar. and Sept.	Mar. and Sept.
Canal Zone	As needed	As needed
Hawaii	Jan. and July	Monthly
Puerto Rico	Semi-annually	Semi-annually
Virgin Islands	Continuously	Continuously

SCHEDULE OF WRITTEN EXAMINATION DATES AND RECIPROCITY MEETINGS

In table 17 is included the current schedules of state licensing boards for examinations for medical licensure and meetings held for the issuance of licenses by reciprocity or endorsement. Examination dates and reciprocity meetings have in recent years been scheduled by many states at more frequent intervals in order to assist physicians to commence the the practice of medicine. Executive officers and members of examining boards are to be commended for their cooperation, especially in view of the increase in volume of applications in 1946 and 1947. In other states temporary permits are granted enabling physicians to immediately begin the practice of medicine. (See table 22.)

REQUIRED INTERNSHIPS

In tables 18 and 19 are listed the medical schools and licensing boards now requiring internships for the M.D. degree and licensure, respectively. Six schools in the United States and four in Canada require an internship for graduation. Although relatively few schools require the internship for the M.D. degree, this is a requirement for licensure by twenty-three state medical licensing boards, the Connecticut homeopathic medical examining board, the District of Columbia, Alaska, Canal Zone, Hawaii, Puerto Rico and the Virgin Islands. Sixteen boards require the internship to be a rotating service. The licensing boards have returned to the prewar requirement of a

TABLE 18.—*Medical Schools Requiring an Internship*

United States

College of Medical Evangelists
University of Southern California School of Medicine
Stanford University School of Medicine
Northwestern University Medical School
University of Minnesota Medical School
Duke University School of Medicine*

Canada

University of Alberta Faculty of Medicine
University of Manitoba Faculty of Medicine
Dalhousie University Faculty of Medicine
University of Montreal Faculty of Medicine

*Degree not withheld until internship completed.

TABLE 19.—*Medical Licensing Boards Requiring a One Year Internship*†

Alabama
Alaska
Canal Zone*
Connecticut (Homeo. Board)
Delaware*
District of Columbia
Hawaii*
Idaho*
Illinois*
Iowa*
Michigan*
Montana
Nevada*
New Hampshire
New Jersey*
New Mexico
North Dakota*
Oklahoma
Oregon
Pennsylvania*
Puerto Rico**
Rhode Island*
South Dakota
Utah*
Vermont*
Virgin Islands
Washington*
West Virginia
Wisconsin*
Wyoming

† Some states require the internship for graduates of medical faculties abroad and from reciprocity or endorsement applicants.

* Internship must be a rotating service.

** Two year rotating internship required.

one year internship but will continue to accept the nine month wartime internship. Several of the boards, however, require an additional three months of training in a military or civilian hospital. Table 20 lists these states and indicates the relationship of their requirement to the former nine month internship.

TABLE 20.—*Relationship of the Wartime Nine Month Internship to Licensure*

Accepted as Fulfilling Internship Requirement	Additional Three Months in Civilian Hospital or Military Service Required: Will Give Examination at End of Nine Months	Additional Three Months in Civilian Hospital or Military Service Required: Will Not Give Examination Until Completion of Year's Service
Alaska	Alabama[1]	Illinois[2]
Canal Zone	Delaware	New Mexico
Connecticut (homeo. board)	Dist. of Columbia	Utah
Hawaii	Iowa[1]	Virgin Islands
Idaho	New Jersey	West Virginia[3]
Michigan[3]	North Dakota	
Montana	Oregon[1]	
Nevada	Rhode Island[1]	
New Hampshire	Vermont	
Oklahoma[2]	Washington[1]	
Pennsylvania	Wisconsin	
Puerto Rico	Wyoming	
South Dakota[3]		

1. Will also give examination on completion of the medical course but withhold license until internship is completed.
2. Military medical service must be in a military hospital.
3. Three months service with United States Public Health Service acceptable.

A few of the medical schools and licensing boards maintain their own list of hospitals acceptable for intern training, but the list of approved internships compiled by the Council on Medical Education and Hospitals of the American Medical Association is generally used.

LICENSURE REQUIREMENTS FOR INTERNS AND RESIDENTS

With few exceptions physicians serving internships are not required to hold a license in the state in which the hospital where they are interning is located. The legal requirements for applicants for residency training vary considerably. In some states there is no provision for the licensure of a resident. On the other hand, a number of states consider that residents are actually in the practice of medicine and require that such individuals possess a license to practice in the states. These facts are shown in table 21.

LICENSURE ON GOVERNMENT CREDENTIALS

The medical practice acts of most states do not provide for the acceptance of government credentials as a basis for licensure without examinations. The boards of six states may issue a license without examination to a physician who has passed an examination for admission to the medical corps of the United States Army, Navy or Public Health Service. These states are California, Illinois, Texas, Utah, Virginia and Wisconsin. Legal residents of Pennsylvania who were qualified to take the state board examination but were prevented from doing so by reason of enlistment or induction into the military or naval forces of the United States in World War II are licensed without examination. In South Dakota former medical officers of World War II are exempted by law from the basic science board examination.

TABLE 21.—*Licensure Requirements for Interns and Residents*

	Licensure in State Required for Interns	Licensure in State Required for Residents
Alabama	No	No
Arizona	No	No
Arkansas	No	No
California	No[a]	Yes[b]
Colorado	No	No
Connecticut	No	No[c]
Delaware	No[d]	No[d]
District of Columbia	No	Yes
Florida	No	Yes
Georgia	Yes	Yes
Idaho	No	No
Illinois	No	Yes
Indiana	No	Yes
Iowa	No	Yes
Kansas	No	Yes
Kentucky	No	No
Louisiana	Yes	Yes
Maine	No	Yes
Maryland	No[c]	Yes[c]
Massachusetts	Yes[d]	Yes[d]
Michigan	No	Yes
Minnesota	No	Yes
Mississippi	No	No
Missouri	No[c]	No[c]
Montana	No	No
Nebraska	No	No
Nevada	Yes	Yes
New Hampshire	No	No
New Jersey	No[e]	No[e]
New Mexico	No	Yes
New York	No	No
North Carolina	No	Yes
North Dakota	Yes	Yes
Ohio	No	Yes
Oklahoma	No	Yes
Oregon	No	No[c]
Pennsylvania	No	Yes[f]
Rhode Island	No	No
South Carolina	No	Yes
South Dakota	No	No
Tennessee	No[c]	Yes
Texas	No[c]	Yes
Utah	No	No
Vermont	No	No
Virginia	No[g]	No[g]
Washington	No	No
West Virginia	No	No
Wisconsin	No	Yes
Wyoming	No	No
Alaska	No	No
Canal Zone	No	No
Hawaii	No	No
Puerto Rico	Yes	Yes
Virgin Islands	No	No

a. Physician registered with State Board may serve as intern not to exceed two years without licensure.
b. May commence residency before licensure.
c. Required by some hospitals
d. Registration with state board required.
e. May have service of two years without licensure.
f. Licensure required after one year's service.
g. May have service of three years without licensure.

RELOCATION OF PHYSICIANS

The Council on Medical Service of the American Medical Association maintains a service by which it endeavors to be of assistance to physicians desiring to relocate. This is done through close association with state and county medical societies as a voluntary effort without any attempt to direct the location of a physician. Any physician can obtain a brief but comprehensive picture of the economic status of any particular area in which he is interested from the data contained on the county summary sheets. This includes data on population, principal cities, physicians, hospitals and medical facilities and pertinent economic, social and financial information. A copy of this summary sheet is forwarded to the inquirer, and a copy of the letter to him is sent to the state and county medical society concerned.

In addition to the information contained on the summary sheets, other data are available for interested physicians. Requests for full time or part time salaried medical positions from industries, institutions and other organizations, requests from practicing physicians for associates, needs for specialists and requests of individuals for practices are cross filed and kept current by a return post card system, which keeps the Council on Medical Service informed of final locations, filling of vacancies and the securing of physicians.

TABLE 22.--*Temporary Permits, 1947*

State	Permit Valid For:	Permits Granted
Arizona	3 months	62
Florida	Next board meeting	1
Georgia	Next board meeting	125
Indiana[1]	6 months	135
Kansas	Next board meeting	72
Kentucky	1-5 years (limited licensure)	--
Louisiana	*Next board meeting*	--
Mississippi	Next board meeting	65
Nebraska[1]	Until licensure is perfected	7
Nevada	Discontinued June 30, 1947	1
New Hampshire	Varies	--
New Jersey	Four months	--
New Mexico	Next board meeting	51
North Carolina	Discretion of board	1
Utah	Next board meeting	--
Virginia	Next board meeting	18
Washington	Discontinued June 30, 1947	46
West Virginia	Next board meeting	22
Puerto Rico	Until 1950[2]	42
Total		648

1. Reciprocity applicants
2. Government positions only

TEMPORARY PERMITS

The licensing boards of eighteen states and Puerto Rico provide for the issuance of temporary permits. These states, the length of validity of the permit and the number of permits granted during the last calendar year are shown in table 22. Alaska and Maine discontinued this service in 1947, while provisions for temporary permits were established during the year in Kansas, Nebraska, Nevada, New Jersey, North Carolina and Utah. Indiana and Nebraska grant permits only to reciprocity applicants, and Puerto Rico to physicians in government positions.

TABLE 23.--*States Requiring Annual Registration*

	Fee		Fee		Fee
Alaska	$10	Indiana	c	North Dakota	e
Arizona	3	Iowa	1	Oklahoma	3
Arkansas	a	Kansas	1	Oregon	10
California	2	Louisiana	2	Pennsylvania	1
Colorado	b	Minnesota	2	Tennessee	5
Connecticut	2	Missouri*	1	Texas	2
Dist. of Columbia	2	Montana	d	Utah	3
Florida	1	Nebraska	1	Virginia	1
Georgia	None	Nevada	2	Washington	5
Hawaii	2	New Mexico	f	Wisconsin	3
Idaho	2	New York*	4	Wyoming	2.50

a. Residents, $2, Nonresidents $4. b. Residents $2, Nonresidents $10. c. Residents $5, Nonresidents $10. d. Residents $5, Nonresidents $1. e. Residents $5, Nonresidents $2. f. Residents $2. Nonresidents $5. * Biennial registration

ANNUAL REGISTRATION

Thirty states, the District of Columbia, Alaska and Hawaii require physicians to register their license annually or biennially. In table 23 are listed the licensing boards which exact this requirement. Some of these boards require such registration whether or not physicians reside in the state. The fee ranges from $1 to $10. Six states have a resident and a nonresident fee. Montana and New York require biennial registration. Indiana, Tennessee and Virginia added this regulation in 1947, while it was dropped last year in Delaware.

CANDIDATES EXAMINED, 1943-1947

In table 24 are tabulated the number of candidates examined for medical licensure in the United States and its territories and possessions for the five year period from 1943 to 1947. For each year there is recorded the number who passed and failed licensing examinations. Totals for the five years and the percentage of candidates who failed are also given.

In the five year period shown 35,882 examinations were given; 32,071 were successful tests and 3,811, 10.6 per cent, resulted in failures. New York leads in the number of examinations given. In this state 2,412 applicants were passed. More than 2,000 also were successful in California, Illinois and Pennsylvania. More than 1,000 were passed at examinations in Florida, Louisiana, Maryland, Michigan, Minnesota, Missouri, Ohio and Texas. The greatest percentage of failures, 59 per cent, occurred in Massachusetts. The majority of those failing in Massachusetts represent graduates of unapproved medical schools and graduates of schools of osteopathy. The number failing will probably decrease since the schools whose graduates were, by law, tested in this state are no longer operating. Furthermore, the State Approving Authority has ruled that students matriculating after Jan. 1, 1941 in institutions not meeting the standards of this authority will not be eligible for licensure. New York's percentage of failures, 44.3, was second highest. This state examines a considerable number of graduates of foreign medical schools, many of whom do not pass on first examination. Regulations admitting certain graduates of unapproved and osteopathic schools to its licensure examinations resulted in a high percentage of failures in 1947. Other high percentages occurred in Connecticut, Nevada and New Hampshire. Twenty-five states failed less than 5 per cent of those examined in the five year period. Twelve states had no failures. The percentage of failures has remained practically constant, the low being 9.9 per cent in 1945 and 1946 and the high 11.8 per cent in 1944.

TABLE 21.--*Candidates Examined, 1943-1947*

	1943		1944		1945		1946		1947		Total for Five Years		
	P	F	P	F	P	F	P	F	P	F	P	F	%F
Alabama	20	0	20	0	23	0	20	0	97	0	180	0	0.0
Arizona	6	0	12	0	11	0	12	1	19	3	60	4	6.2
Arkansas	65	0	115	0	65	0	63	0	54	0	362	0	0.0
California	507	12	458	14	467	11	530	11	503	10	2,465	58	2.3
Colorado	113	3	79	3	66	0	77	0	95	0	430	6	1.4
Connecticut	62	12	34	18	31	12	55	10	49	17	231	69	23.0
Delaware	9	0	27	0	5	0	16	1	18	0	75	1	1.3
District of Columbia	42	2	26	2	20	1	41	0	39	0	168	5	2.9
Florida	129	8	130	9	198	37	373	62	314	17	1,144	133	10.4
Georgia	195	0	125	1	124	0	168	2	129	0	741	3	0.4
Idaho	9	1	15	0	18	0	54	0	62	0	158	1	0.6
Illinois	391	29	218	25	415	31	751	33	605	16	2,380	16	0.7
Indiana	233	0	126	0	231	0	139	16	111	12	840	28	3.2
Iowa	106	8	83	8	68	1	57	4	55	0	369	21	5.4
Kansas	86	0	179	0	101	0	102	0	86	0	554	0	0.0
Kentucky	161	1	78	0	76	0	166	0	90	0	571	1	0.1
Louisiana	228	2	255	4	208	1	189	1	225	1	1,105	9	0.8
Maine	29	3	13	3	9	3	45	4	31	2	127	15	10.6
Maryland	296	14	151	4	193	8	204	4	175	6	1,019	36	3.4
Massachusetts	257	294	162	261	124	175	89	163	84	140	716	1,033	59.0
Michigan	299	2	189	0	194	0	215	0	116	0	1,013	2	0.2
Minnesota	290	0	197	0	217	0	313	0	248	0	1,265	0	0.0
Mississippi	113	1	71	0	50	0	45	0	59	0	338	1	0.3
Missouri	421	1	207	0	258	1	251	1	265	0	1,402	3	0.2
Montana	4	0	3	0	2	0	17	0	8	0	34	0	0.0
Nebraska	155	15	81	11	74	7	81	5	87	3	478	41	7.8
Nevada	0	1	1	0	1	1	15	3	8	0	25	5	16.7
New Hampshire	5	4	9	4	6	1	20	4	10	0	50	13	20.6
New Jersey	150	11	104	11	95	9	116	5	89	13	554	49	8.0
New Mexico	1	0	0	0	0	0	1	0	1	0	3	0	0.0
New York	634	443	454	362	287	247	427	386	610	482	2,412	1,920	44.3
North Carolina	115	0	105	0	132	1	95	0	113	1	560	2	3.4
North Dakita	1	0	3	0	4	0	13	0	25	0	46	0	0.0
Ohio	622	22	329	25	325	13	340	10	297	3	1,913	73	3.6
Oklahoma	114	0	72	0	69	0	68	0	72	0	395	0	0.0
Oregon	52	5	11	5	19	1	50	3	80	0	212	14	6.2
Pennsylvania	475	12	853	20	426	13	463	3	437	3	2,654	51	1.8
Rhode Island	20	0	13	3	6	0	40	0	32	0	111	3	2.6
South Carolina	91	0	51	1	58	0	53	0	55	0	308	1	0.3
South Dakota	6	0	3	0	6	0	10	0	18	0	43	0	0.0
Tennessee	201	0	237	0	193	2	157	1	110	0	898	3	0.3
Texas	195	4	303	3	228	7	266	14	282	13	1,274	41	3.1
Utah	27	0	30	0	13	0	79	0	0	0	149	0	0.0
Vermont	19	0	7	0	2	0	5	0	27	1	60	1	1.6
Virginia	264	1	158	9	39	2	174	2	130	4	765	18	2.3
Washington	54	1	76	0	35	0	130	0	116	0	411	1	0.2
West Virginia	23	0	24	0	20	0	64	0	40	0	171	0	0.0
Wisconsin	179	0	74	0	96	0	123	1	143	0	615	1	0.2
Wyoming	0	0	0	0	0	0	0	0	0	0	0	0	0.0
U.S. Territories & Poss.	14	2	39	0	35	2	74	4	55	3	217	11	3.9
Total Examined	8,402		6,816		5,930		7,610		7,124		35,882		
Passed	7,488		6,010		5,343		6,856		6,374		32,071		
Failed	914		806		587		754		750		3,811		
Percentage Failed	10.9		11.8		9.9		9.9		10.5		10.6		

These figures represent examinations given and not individuals. A candidate who fails more than once in a state in a given year is counted only once, but should he also fail in a succeeding year he is also counted in that year. A successful candidate securing a license in more than one state in a given year is counted in both states and likewise counted if he is passed at examinations in later years. These figures give only a fair approximation of the number of physicians added to the profession by the written examination method. Table 14, page 621 represents actual additions to the medical profession for this period.

REGISTRATION, 1904-1947

A recapitulation of the totals discussed in this study and for forty-three previous years (1904-1947) is given in table 25. This tabulation covers physicians registered by written examination and by reciprocity or endorsement of credentials. Likewise shown are the numbers who failed annually in forty-four years and the percentage of failures each year and, lastly, the total annual registration. No obvious trend in the numbers registered is evident from 1904 to 1933 except in 1918, when 4,231 were licensed, the lowest registration in forty-four years. Beginning in 1933 there was an upward trend through 1941. The decrease of more than 1200 in 1918 was due to the withdrawal of physicians and recent graduates for the armed forces in

World War I. By contrast, in 1943 the numbers increased by a similar figure over the preceding year. The increase was the result of the accelerated curriculum and efforts made to maintain civilian care at as high a level as possible and still provide for the military exigencies. In 1943 more physicians were examined than in any previous year.

The registrations in 1946 numbered almost twice as many as in 1945. Separation from service of a large number of medical officers and their return to private practice in states other than those in which they were licensed accounts in large part for this increase. This trend was again evident in 1947, although to a lesser extent. The majority of those registered by the examination method, however, represent the current graduates of a given year.

In analyzing this table it should be remembered that the figures refer to examinations given rather than to individuals examined.

GRADUATES OF APPROVED SCHOOLS AND OTHERS REGISTERED, 1922-1927

The educational fitness of physicians registered for the practice of medicine in twenty-computation of these figures, schools rated as class A and B by the Council on Medical Education and Hospitals of the American Medical Association since 1907 are classified as approved. In the column ''Others''are included individuals who graduated prior to 1907, when the first classification of schools was made, graduates of foreign faculties of medicine, Class C graduates, osteopaths given recognition by medical licensing boards and graduates of schools not approved by the Council. In 1928 the classification A, B and C by the Council was discontinued and a list of approved medical schools has since been maintained.

TABLE 25.--*Registration of Physicians, 1904-1947*

Year	Examined	Passed	Percentage Failed	Reciprocity or Endorsement	Total Registerd
1904	7,056	5,693	19.3	1,005	6,698
1905	7,178	5,688	20.8	394	6,082
1906	8,040	6,373	20.7	1,502	7,875
1907	7,279	5,731	21.3	1,427	7,158
1908	7,775	6,089	21.7	1,284	7,373
1909	7,295	5,865	19.6	1,381	7,246
1910	7,011	5,719	18.4	1,640	7,359
1911	6,964	5,582	19.8	1.243	6,825
1912	6,880	5,467	20.5	1,273	6,740
1913	6,453	5,253	18.6	1,292	6,545
1914	5,579	4,379	21.5	1,439	5,818
1915	5,334	4,507	15.5	1,399	5,906
1916	4,878	4,151	14.9	1,353	5,504
1917	4,754	4,085	14.0	1,360	5,445
1918	3,667	3,184	13.2	1,047	4,231
1919	4,750	4,074	14.2	2,546	6,620
1920	4,796	4,062	15.3	2,558	6,620
1921	4,825	4,228	12.4	2,186	6,414
1922	4,031	3,539	12.2	2,073	5,612
1923	4,727	4,028	14.8	2,405	6,433
1924	5,392	4,756	11.8	1,923	6,679
1925	6,002	5,450	9.2	1,861	7,311
1926	5,770	5,314	7.9	1,955	7,269
1927	5,389	5,002	7.2	2,176	7,178
1928	5,458	5,090	6.7	2,228	7,318
1929	5,629	5,282	6.2	2,420	7,702
1930	5,571	5,255	5.7	2,366	7,621
1931	5,611	5,263	6.2	2,211	7,476
1932	5,675	5,247	7.6	1,886	7,133
1933	5,673	5,244	7.6	1,989	7,233
1934	6,145	5,628	8.4	2,161	7,789
1935	6,443	5,859	9.1	2,194	8,053
1936	6,917	6,223	10.0	2,773	8,996
1937	7,334	6,604	10.0	3,205	9,809
1938	7,461	6,589	11.7	2,956	9,545
1939	7,754	6,493	16.3	2,872	9,365
1940	7,926	6,291	20.7	2,866	9,157
1941	7,539	6,057	19.7	2,760	8,817
1942	7,222	6,119	15.4	2,469	8,588
1943	8,402	7,488	10.9	2,340	9,828
1944	6,816	6,010	11.8	2,596	8,606
1945	5,930	5,343	9.9	3,621	8,964
1946	7,610	6,856	9.9	9,669	16,525
1947	7,124	6,374	10.5	7,682	14,056

The percentage of failures gradually dropped from 19.3 in 1904, when a great many proprietary medical schools were functioning, to 5.7 in 1930. Improvements in the standards of medical education are reflected in this decrease of failures in licensing examinations. With the migration of European physicians to this country beginning in 1936 and the resultant licensure difficulties, the proportion of failures began to rise, reaching another peak of 20.7 per cent in 1940.

There were 14,056 candidates registered in 1946, of whom 13,038 (92.8 per cent) represented graduates of approved schools and 1,018 (7.2 per cent) were in the second group. In the twenty-six year period there were 198,963 registrations of approved graduates (89.1 per cent) and 24,102 others (10.8 per cent). Until the influx of foreign graduates in 1936 and the concessions made to unapproved graduates those in the second group were fewer than 1,000 annually.

GRADUATES OF UNAPPROVED SCHOOLS REGISTERED, 1942-1947

Graduates of institutions which do not meet the educational standards outlined by the House of Delegates of the American Medical Association and administered by the Council on Medical Education and Hospitals were registered in twenty states and Hawaii during the last six years. The number so registered will be found in table 27. Figures are given separately for those licensed by written examination and by endorsement of credentials. In the six years shown 1160 were registered, 1,160 by examination and 21 without written examination. New York, which has made certain concessions; Illinois, which accepts for licensure the graduates of an unappróved school located in that state, and Massachusetts licensed the largest number of graduates of unapproved schools. In the last mentioned state the institutions referred to in the table were not granted approval by the State Approving Authority. Matriculants after Jan. 1, 1941 are not eligible for licensure in Massachusetts. Regulations have become effective in Florida, Ohio and a few other states providing for licensure of unapproved graduates under certain conditions.

TABLE 26.--*Graduates of Approved Schools and Others Registered, 1922-1947*

	Graduates of Approved Schools		Others		
	Number	Per Cent of Total	Number	Per Cent of Total	Totals
1922	4,519	80.5	1,093	19.5	5,612
1923	5,196	80.8	1,237	19.2	6,433
1924	5,687	85.1	992	14.9	6,679
1925	6,314	86.4	997	13.6	7,311
1926	6,441	88.7	828	11.3	7,269
1927	6,410	89.4	768	10.6	7,178
1928	6,585	90.1	733	9.9	7,318
1929	7,003	91.0	699	9.0	7,702
1930	7,011	92.1	610	7.9	7,621
1931	6,932	92.8	544	7.2	7,476
1932	6,676	92.1	457	6.3	7,133
1932	6,774	93.7	459	6.3	7,233
1934	7,172	92.1	617	7.9	7,789
1935	7,360	91.3	693	8.5	8,053
1936	7,933	88.1	1,063	11.8	8,996
1937	8,391	85.5	1,418	14.4	9,809
1938	8,315	87.1	1,230	12.9	9,545
1939	8,067	86.2	1,298	13.8	9,365
1940	7,781	85.0	1,376	15.0	9,157
1941	7,768	87.9	1,049	11.9	8,817
1942	7,290	84.9	1,298	15.1	8,588
1943	8,640	87.9	1,188	12.2	9,828
1944	7,736	89.8	870	10.1	8,606
1945	8,232	91.8	732	8.1	8,964
1946	15,692	94.9	835	5.1	16,527
1947	13,038	92.8	1,018	7.2	14,056
Total	198,963	89.1	24,102	10.8	223,065

GRADUATES OF SCHOOLS OF OSTEOPATHY REGISTERED BY MEDICAL EXAMINING BOARDS 1942-1947

The number of graduates of schools of osteopathy granted the privilege of practicing medicine or surgery or both by seventeen examining boards for six years (1942-1947) are given in table 28. There have been 1,192 such individuals registered, 933 by examination and and 259 without examination.

Following is a summavy of the situation in the sixteen states and the District of Columbia providing for the licensure of osteopaths by the medical examining board.

TABLE 27.—*Graduates of Unapproved Medical Schools Registered, 1942-1947*

	Examination						Reciprocity & Endorsement						Total
	1942	1943	1944	1945	1946	1947	1942	1943	1944	1945	1946	1947	
Arizona	0	0	0	0	0	0	0	0	0	0	2	0	2
California	0	0	0	0	0	0	0	0	0	4	0	0	4
Florida	0	6	0	0	1	11	0	0	0	0	0	0	12
Illinois	61	57	45	115	45	54	0	0	0	0	1	0	368
Indiana	0	0	0	0	0	0	1	0	0	0	0	0	1
Iowa	0	0	0	0	1	0	0	0	0	0	1	0	2
Kentucky	0	2	0	0	0	2	0	0	0	0	0	0	4
Massachusetts	105	177	102	38	24	37	0	0	0	0	0	0	463
Mississippi	1	0	1	0	4	0	0	0	0	0	0	0	6
Missouri	0	1	0	0	0	0	0	0	1	1	0	0	3
Nebraska	0	0	0	0	0	0	0	0	0	0	1	0	1
Nevada	0	0	0	0	0	0	0	0	1	2	0	0	3
New Hampshire	0	0	0	0	0	1	0	0	0	1	0	0	2
New Mexico	0	1	0	0	0	1	0	0	0	1	0	0	3
New York	0	0	0	0	111	132	0	0	0	0	0	0	243
Ohio	0	0	0	0	6	4	0	0	0	0	0	0	10
Texas	0	0	0	0	0	0	0	0	0	0	1	0	1
Virginia	0	1	5	3	10	4	0	0	0	0	1	0	24
Washington	0	0	0	0	2	4	0	0	0	0	0	0	6
Wisconsin	0	0	0	0	0	0	0	1	0	1	0	0	2
Hawaii	0	1	0	0	0	0	0	0	0	0	0	0	1
Totals	167	246	153	156	204	250	1	1	2	10	7	9	1,181

Alabama last year registered a graduate of a school of mechanotherapy.

In Colorado an osteopath receives a license to practice medicine. In Connecticut any reistered osteopath may practice either medicine or surgery or both, as the case may be, if he passes a satisfactory examination before the medical examining board. In Delaware osteopaths are licensed as " osteopathic physicians." In the District of Columbia osteopaths are granted the right to practice surgery. In Indiana the licenses issued to osteopaths under a 1945 amendment to the medical practice act authorize the holders to practice medicine and surgery. Licentiates in osteopathy prior to 1945 have now been authorized to practice osteopathy, surgery and obstetrics. In Massachusetts the medical practice act, by definition, includes osteopathy in the practice of medicine and does not differentiate the type of license issued to an osteopathic applicant. According to a law passed in Nebraska in 1943, "any

TABLE 28.—*Graduates of Schools of Osteopathy Registered by Medical Boards, 1942-1947*

	Examination						Reciprocity & Endorsement						Total
	1942	1943	1944	1945	1946	1947	1942	1943	1944	1945	1946	1947	
Alabama	0	0	0	0	0	1	0	0	0	0	0	0	1
Colorado	9	9	7	7	5	11	0	0	0	0	0	0	48
Connecticut	0	5	5	2	5	3	0	0	0	0	0	0	20
Delaware	0	0	3	0	0	0	0	0	0	0	4	0	7
Dist. Columbia	2	0	0	0	0	0	1	0	0	1	1	1	6
Indiana	4	2	3	0	43	0	2	3	3	7	7	0	74
Massachusetts	13	5	4	5	0	2	0	0	0	0	0	1	32
Nebraska	0	6	0	2	0	1	0	1	0	0	0	0	10
New Hampshire	0	0	3	0	0	0	1	1	2	0	0	3	10
New Jersey	9	18	30	16	9	9	0	0	0	0	0	2	92
New York	0	0	0	0	5	134	0	0	0	0	0	75	214
Ohio	0	138	72	48	47	12	0	0	3	1	7	10	358
Oregon	1	0	0	0	0	0	5	3	8	14	12	10	59
Texas	17	18	38	29	42	38	1	2	1	1	0	0	187
Virginia	0	0	0	0	1	0	0	0	0	0	0	0	1
Wisconsin	5	6	0	1	1	3	1	16	5	16	11	3	67
Wyoming	0	0	0	0	0	0	2	1	2	0	1	0	6
Totals	60	227	165	109	158	214	13	27	24	39	45	113	1,192

person now licensed to practice osteopathy may, if application is made prior to July 1, 1948 and upon payment of the prescribed fee, take the first regular examination given after the application is made before the Board of Examiners in Medicine....If successful he or she shall receive a license to practice medicine and surgery in the state." In New Hampshire osteopaths are granted the right to practice medicine and surgery.

New Jersey provides that osteopaths licensed prior to Nov. 1, 1941 who furnish proof prior to that date of having served for a period of two years as an intern or resident surgeon in an osteopathic or medical hospital approved by the board of medical examiners, of having completed a postgraduate course of two years in a college of osteopathy or medicine approved by the board or of having had at least three years of practice in a hospital approved by the board can be admitted to an examination in pharmacology, therapeutics and surgery and, if successful, can obtain a license to practice medicine and surgery. Since 1941 all osteopathic applicants who have met the requirements of the medical practice act have been licensed to practice medicine and surgery.

In New York a law approved April 10, 1946 provides that any osteopathic licentiate who had obtained the additional right to use instruments for minor surgical procedures and to use anesthetics, antiseptics, narcotics and biological products or any applicant who has met or shall meet all the preliminary and professional requirements as required as of September first, nineteen hundred thirty-six and has satisfactorily passed or shall satisfactorily pass the regular medical licensing examination shall be granted the right to practice medicine without limitation as defined by the statutes of the State of New York.

A law passed in Ohio in 1943 gives osteopaths who obtain their licenses under that act the right to practice osteopathic medicine and surgery. In Oregon they are granted the right to practice "in the subjects" covered by the examination, which includes surgery. The medical practice act of Texas provides for the issuing of a license to practice medicine only, and osteopaths are issued licenses unrestricted in scope. In Virginia osteopaths may obtain the right to use drugs and perform surgery with the use of instruments if they satisfy the board of medical examiners that they are qualified to do so. Wisconsin grants osteopaths the privilege to practice surgery, and in Wyoming the statutes contain no specific provision for the licensing of osteopaths. The medical practice act of the latter state provides that the certificate issued to all applicants "shall be deemed licenses to practice medicine in all branches in which the applicant has taken examination in the state."

PHYSICIANS EXAMINED ON BASIS OF CREDENTIALS OBTAINED IN COUNTRIES OTHER THAN THE UNITED STATES AND CANADA

The Council on Medical Education and Hospitals does not grade or classify medical schools outside the United States and Canada. It *does not attempt to evaluate institutions* which it is not in a position to visit to determine whether they meet the minimal essentials of an acceptable medical school as outlined by the Council. This was true even before the war.

For a period of twelve years beginning in 1926 the credentials of physicians coming from abroad were verified by the Council through official correspondence with the medical schools directly or through the diplomatic services. Prior to the onset of the war in Europe it was necessary to discontinue this effort, and on the licensing boards rests the responsibility of evaluating the credentials presented by these graduates. In the 1942 edition of the American Medical Directory a symbol in the biographic data of foreign graduates, the key number of the foreign school and the year of graduation given is the licensing board's record of the credential accepted as meeting the educational qualifications for licensure. The absence of the symbol may be interpreted to indicate that official verification is on file in the office of the Council.

A committee composed of representatives of various interested organizations has been formed to consider the problem of evaluation of foreign credentials submitted by physicians and students from foreign medical schools. This committee met in 1947 and again in 1948. No positive recommendations emerged from this meeting, but the discussions will be continued and an attempt made to obtain pertinent data pertaining to schools and educational procedures in all countries. Addresses presented at the Annual Congress on Medical Education and Licensure in February 1948 by physicians who visited medical schools in other countries and already published in THE JOURNAL[2] should be helpful to those charged with the responsibility of evaluating foreign credentials.

The requirements of candidates for medical licensure in the United States, Alaska, Hawaii and Puerto Rico on the basis of credentials obtained in countries other than the United States and Canada are given in table 29. Twenty-one states report that the holders of such *credentials are not eligible for licensure*. Eighteen states, Alaska, Hawaii and Puerto Rico require full citizenship and seven states, naturalization papers as a condition precedent to taking the examination. The District of Columbia, Indiana and Washington make no reference to citizenship. In some states the recognition or nonrecognition of such individuals is by rule of the board; in others the provision is by statute. Nine states and Alaska which will admit foreign graduates to

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[2] J. A. M. A. 137:5 (May 1) 1948.

TABLE 29.—*Requirements of Candidates for Medical Licensure on the Basis of Credentials Obtained in Countries Other Than the United States and Canada.*

	Admitted to Examination	Admitted by Endorsement of State License*	Citizenship	Basic Science Certificate	Internship in Hospital in United States	Further Medical Training	Examination Fee, Dollars	Other Requirements
Alabama	X	..	X	..	X	..	10	1
Arizona	Not accepted							
Arkansas (reg. and homeo. boards)	Not accepted							
California	x	x[21]	x[8]	..	x[18]	x[18]	25	13
Colorado	Not accepted							
Connecticut (regular board)	x	x	1st P	x	..	..	25	..
Delaware (regular board)	x	..	x	..	x	..	25	5,22
District of Columbia	x	x[6]	..	x	x	..	25	19
Florida	x	..	x	x	..	x[7]	25	..
Georgia	Not accepted							
Idaho	Not accepted							
Illinois	x	..	1st P	..	x	..	15	..
Indiana	x	x	..	..	..	x[7]	25	..
Iowa	x[10]	..	x	x	x[2]	x[2]	25	..
Kansas	x	..	x	..	x[24]	..	25	11
Kentucky	Not accepted							
Louisiana (reg. and homeo. boards)	Not accepted							
Maine	x	x	x	..	x	..	27	11,20
Maryland (reg. and homeo. boards)	x	..	1st P	..	x[26]	..	25	19
Massachusetts	x	..	1st P	..	..	..	25	..
Michigan	x	x	x	x	x	x[7]	25	..
Minnesota	Not accepted							
Mississippi	x	..	x	..	x	..	103	..
Missouri	x	..	x	..	x	..	15	..
Montana	Not accepted[25]							
Nebraska	x	x	x	x	..	..	25	..
Nevada	Not accepted							
New Hampshire	x	x[12]	x	..	x	..	20	..
New Jersey	x	x	x	..	x[17]	..	25	27
New Mexico	Not accepted							
New York	x	x	1st P	..	..	..	25	14
North Carolina	Not accepted							
North Dakota	x	..	x	..	x	..	25	11
Ohio	x	x	x	..	..	..	25	13
Oklahoma	Not accepted							
Oregon	Not accepted							
Pennsylvania	x	..	1st P	..	x	..	25	..
Rhode Island	x	..	1st P	x	x	x	20	28
South Carolina	Not accepted							
South Dakota	Not accepted							
Tennessee	x	..	x	x	..	..	25	..
Texas	x	15	x	..	..	..	25	4
Utah	Not accepted							
Vermont	Not accepted[23]							
Virginia	x	..	x	15	15	x	25	..
Washington	x	..	..	x	x	x[7]	25	9
West Virginia	Not accepted							
Wisconsin	Not accepted							
Wyoming	Not accepted							
Alaska	x	x	x	x	x	..	25	..
Hawaii	x	..	x	..	x	..	25	12
Puerto Rico	x	x	x	..	x	..	25	..

*Refer to chart of "Reciprocity and Endorsement Policies" for further data.

1. Certificate of National Board of Medical Examiners required.

2. Internship or one year in medical school in United States.

3. Certificate of National Board of Medical Examiners.

4. European graduates after 1939 limited to English speaking schools.

5. Residence of one year in Delaware.

6. If similar privileges are accorded licentiates of District of Columbia by licensing agency of jurisdiction from which applicant comes.

7. Senior year in an approved medical school in United States or Canada, possess the degree of Master of Public Health from an acceptable school, or satisfactorily complete a one year's assistant residency, residency or fellowship in an approved hospital.

8. Not required if country in which applicant is licensed will admit to practice citizens of the United States licensed to practice in some state or upon proof of requirements similar to those required by California of graduates of foreign medical schools.

9. Enemy aliens not accepted.

10. Application must be filed six months prior to date of examination.

11. Licensed to practice medicine and surgery in country in which school of graduation is located, otherwise required to complete senior year in approved medical school in United States.

12. Diplomates of National Board of Medical Examiners eligible.

13. License to practice medicine and surgery in the country in which the school of graduation is located. Applicants limited to University Schools of Great Britain.

14. Matriculants after January 1, 1940 not accepted.

15. At the discretion of the board.

16. Internship and graduate work.

17. Internship completed in foreign countries after July 1, 1934 not acceptable.

18. Rotating internship in approved hospital in the United States or completion of senior year in class A medical school in the United States.

19. These requirements apply also to graduates of Canadian schools.

20. No applications accepted from countries other than England (certain schools), Ireland, Scotland and Australia.

21. Provided standard was the same as California on the same date.

22. Degree from an American medical college acceptable to the Medical Council of Delaware required.

23. Diplomates of the National Board of Medical Examiners accepted. Citizenship required.

24. In lieu of internship, certificate from three graduates of applicant's medical school licensed to practice medicine in United States accepted.

25. Effective July 1, 1943.

26. Homeopathic Board requires one year internship in homeopathic hospital in the United States.

27. Matriculants of medical schools of Europe and Asia after November 19, 1941 not accepted. Graduates of medical schools of South American Republics, Mexico, and Cuba not accepted.

28. License to practice medicine and surgery in country in which school of graduation is located.

TABLE 30.—*Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada, 1947*

School	1 California		2 Colorado		3 Connecticut		4 Dist. of Columbia		5 Florida		6 Georgia		7 Illinois		8 Indiana		9 Iowa		10 Kansas		11 Kentucky		12 Maine		13 Maryland		14 Massachusetts		15 Mississippi		16 Missouri		17 Nebraska		18 New Jersey		19 New York		20 North Carolina		21 North Dakota		22 Ohio		23 Pennsylvania		24 Rhode Island		25 South Dakota		26 Tennessee		27 Texas		28 Vermont		29 Virginia		30 Washington		31 Alaska, Hawaii and Puerto Rico		Totals	Examined-Passed	Examined-Failed	Percentage of Failures	Number of Boards Examined by	Marginal Number
	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F						
ALGERIA																																																																				
1 Ecole de Plein Exercice de Médecine, Alger																																						0	1																									1	0	1	100	1	1
ARGENTINA																																																																				
2 Universidad Nacional de Buenos Aires																									1	0																																						1	1	0	0	1	2
AUSTRIA																																																																				
3 Leopold Franzens-Universitat, Innsbruck													0	1																																																		1	0	1	100	1	3
4 Universität Wein	5	0	1	0	0	1							2	1							1	0			1	1	2	0			2	0			0	1	13	34					1	0							1	0											67	29	38	56.7	12	4
BELGIUM																																																																				
5 Université Libre de Bruxelles																																						2	2																							1	0	5	3	2	40	2	5
6 Universiteit Gent																											0	1																																			1	0	1	100	1	6
7 Université De Liège																																						1	0																									1	1	0	0	1	7
BRAZIL																																																																				
8 Faculdade de Medicina Cirugia e Pharamacia, Bahia																																						0	1																									1	0	1	100	1	8
9 Universidade do Rio de Janeiro																											0	1																																			1	0	1	100	1	9
CHILE																																																																				
10 Universidad de Chile																																						0	1																									1	0	1	100	1	10
CHINA																																																																				
11 Hsiang Ya Medical College, Changsha																									0	1																																						1	0	1	100	1	11
12 Peiping Union Medical College	1	0																																																			1	0									2	2	0	0	2	12
13 Pennsylvania Medical School, Shanghai																																						0	1	1	0	1	0															0	1			0	1	5	2	3	60	5	13
COLOMBIA																																																																				
14 Universidad Nacional Facultad de Medicina, Bogotà	0	1																																																													1	0	1	100	1	14
CUBA																																																																				
15 Universidad de la Habana	2	1			3	0	1	0	1	0			7	2											0	1	1	1																																			20	15	5	25	7	15
CZECHOSLOVAKIA																																																																				
16 Univerzita Komenského, Bratislava													0	1													2	0									3	4																									10	5	5	50	3	16
17 Masarykova Universita, Brno																																						1	2																									3	1	2	66.7	1	17
18 Deutsche Universitat, Prag					1	0							1	0																							5	8							1	0					1	0											17	9	8	47.1	5	18
19 Universita Karlova, Praha					0	2							0	1													0	1									9	7																									20	9	11	55	4	19
EL SALVADOR																																																																				
20 Universidad de El Salvador	0	1																																																													1	0	1	100	1	20
ENGLAND																																																																				
21 University of Bristol	1	0																																																													1	1	0	0	1	21
22 University of London																									1	0											1	0																									2	2	0	0	2	22
23 University of Oxford																									1	0																																						1	1	0	0	1	23
24 Licentiate of the Royal College of Physicians and Member of the Royal College of Surgeons, London																									1	0											1	1																									3	2	1	33.3	2	24
FINLAND																																																																				
25 Helsingfors Universitet																																						0	1																									1	0	1	100	1	25
FRANCE																																																																				
26 Université d'Aix-Marseille																																						0	1																									1	0	1	100	1	26
27 Universite de Montpellier							1	0					0	1																							0	2																									4	1	3	75	3	27
28 Université de Paris	2	0			1	0													1	0					2	0					1	0			1	0	4	7																									19	12	7	36.8	7	28
GERMANY																																																																				
29 Friedrick-Wilhelms-Universität, Berlin			1	0									1	0											1	0											9	15																			1	1					29	13	16	55.2	5	29
30 Rheinische Friedrich-Wilhelms Universität, Bonn			1	0																																	2	1																									4	3	1	25	2	30
31 Schlesische Friedrich-Wilhelms Universität, Breslau									1	0			1	0																							0	1																									3	2	1	33.3	3	31
32 Friedrich-Alexanders Universität, Erlangen																																						0	1																									1	0	1	100	1	32
33 Johann Wolfgang Goethe Universität, Frankfurt-am-Main																																						0	1																									1	0	1	100	1	33
34 Albert-Ludwigs Universität, Freiburg	1	0	1	0									1	1																							0	3											1	0													8	4	4	40	5	34
35 Vereinigten Freidrichs-Universität, Halle, Wittenberg							1	0																													0	1																									2	1	1	50	2	35
36 Hamburgische Universität																																						2	4																									6	2	4	66.7	1	36
37 Universität Heidelberg	0	1	1	0									0	1											0	1											0	1																									5	1	4	80	5	37
38 Hessische Ludwigs Universität Medizinische																																						0	1																									1	0	1	100	1	38
39 Leopold Franzens-Universität, Innsbruck																																																									1	0							1	1	0	0	1	39
40 Thuringische Landesuniversität, Jena																																						0	1																									1	0	1	100	1	40
41 Christian-Albrechts Universität, Kiel																																						0	1																									1	0	1	100	1	41
42 Universität Koln	1	0																																																													1	1	0	0	1	42
43 Albertus-Universität, Königsberg																																						2	2																					0	1					5	2	3	60	2	43
44 Universität Leipzig			1	0									1	0											0	1					1	0					3	2																									9	6	3	33.3	5	44
45 Ludgig-Maximilians Universität, Munchen	1	1											1	0													0	1									3	4																									11	5	6	56.5	4	45
46 Universität Rostock																																						0	2																									2	0	2	100	1	46
47 Kaiser-Wilhelms-Universität, Strassburg																																						0	1																									1	0	1	100	1	47
48 Eberhard-Karls-Universität, Tubingen																																						0	1																									1	0	1	100	1	48
49 Universität Wein																																	1	0			2	5																									8	3	5	62.5	2	49
50 Julius-Maximilians Universität, Würzburg																																						1	0																									1	1	0	0	1	50
GREECE																																																																				
51 National University of Athens													1	1													0	2									2	1																					1	0			8	4	4	50	4	51

GUATEMALA																																					
52 Universidad Nacional de Guatemala					1 0			2 0																								3	3	0	0	2	52
HAITI																																					
53 Ecole Nationale de Medecine, Port-Au-Prince							0 2																									2	0	2	100	1	53
HUNGARY																																					
54 Maygar Királyi Pázmány Petrus Tudományegyetem, Budapest	1 0		1 0	1 0															2 2				1 0									8	6	2	25	5	54
55 Maygar Királyi Tisza-Istvan-Tudományegyetem, Debrecn																			0 1													1	0	1	100	1	55
56 Maygar Királyi Erzsébet Tudományegyetem, Pecs			0 1																2 5			3 0					0 1					12	5	7	58.3	4	56
57 Maygar Királyi Ferencz-József Tudományegyetem, Szeged																						1 0					0 1					2	1	1	50	2	57
IRELAND																																					
58 National University of Ireland													1 0			1 0			0 3													5	2	3	60	3	58
59 University of Dublin													1 0																			1	1	0	0	1	59
60 Licentiate of the Royal College of Surgeons																			0 1													1	0	1	100	1	60
ITALY																																					
61 Regia Università di Benito Mussolini																			0 1													1	0	1	100	1	61
62 Regia Università di Bologna			0 3		1 1			0 1				0 1	0 1	0 1		1 0		1 1	6 13				1 0									32	10	22	68.8	10	62
63 Regia Università di Firenze																			1 0													1	1	0	0	1	63
64 Regia Università di Genoa	0 1																		0 2													3	0	3	100	2	64
65 Regia Università di Milano																			0 1													1	0	1	100	1	65
66 Regia Università di Napoli							1 0											1 1	2 11												1 0	17	5	12	70.6	4	66
67 Regia Università di Padova																			0 2													2	0	2	100	1	67
68 Regia Università di Palermo																		0 1	1 4													6	1	5	83.3	2	68
69 Regia Università di Pavia																			1 0													1	1	0	0	1	69
70 Regia Università di Pisa	2 0													0 1					2 1													6	4	2	33.3	3	70
71 Regia Università di Roma	1 0		2 2				3 0					1 0		0 1	1 0	1 0			3 6				1 0	1 0								23	14	9	39.1	10	71
72 Regia Università di Siena																		0 1	0 2													3	0	3	100	2	72
73 Regia Università di Torino													0 1						1 1													3	1	2	66.7	2	73
LEBANON																																					
74 American University of Beirut			1 0										1 0						1 0		1 0		1 0									5	5	0	0	5	74
MEXICO																																					
75 Universidad de Gaudalajara	0 2																															2	0	2	100	1	75
76 Universidad Nacional, Mexico							1 0																									1	1	0	0	1	76
NETHERLANDS																																					
77 Universiteit van Amsterdam	1 0																		1 1													3	2	1	33.3	2	77
78 Rijks-Universiteit te Utrecht			0 1																1 1													3	1	2	66.7	2	78
IRAN																																					
79 Madresseh Teb, Teheran																			0 2													2	0	2	100	1	79
POLAND																																					
80 Uniwersytet Jagiellonski, Cracow,																			2 0													2	2	0	0	1	80
81 Uniwersytet Jana Kazimierza, Lwów																			2 2													4	2	2	50	1	81
82 Uniwersytet Jozefa Pilsudskiego, Warszawa															1 0				3 2													6	4	2	33.3	2	82
83 Uniwersytet Stefano Batorego, Wilno																			0 5								1 0					6	1	5	83.3	2	83
RUMANIA																																					
84 Universitatea Din Bucuresti																			1 0													1	1	0	0	1	84
SCOTLAND																																					
85 University of Edinburgh					1 0																1 0											2	2	0	0	2	85
86 University of Glasgow																			0 1													1	0	1	100	1	86
87 Licentiate of the Royal College of Physicians and Surgeons; Edinburgh; Licentiate of the Royal Faculty of Physicians and Surgeons, Glasgow						1 0						1 0		1 1					20 13			1 0										38	24	14	36.8	5	87
SPAIN																																					
88 Universidad de Barcelona									1 0																							1	1	0	0	1	88
89 Universidad Central de España, Madrid																															1 0	1	1	0	0	1	89
SWITZERLAND																																					
90 Universität Basel																			7 9													16	7	9	56.3	1	90
91 Universität Bern	2 0						1 0										1 0		1 6			0 1					0 1			1 0		14	7	7	50	7	91
92 Université de Geneve			0 1				2 1						1 0						2 5													12	5	7	58.3	4	92
93 Université de Lausanne	1 0						1 0												5 9						1 0				0 1			18	8	10	55.6	5	93
94 Universität Zürich		1 0					1 0					1 0							2 8				1 0									14	6	8	57.1	5	94
UNION OF SOCIALIST SOVIET REPUBLICS																																					
95 Voronezh Medical Institute																			0 1													1	0	1	100	1	95
96 Kazan Medical Institute																			0 1													1	0	1	100	1	96
97 Kiev Medical Institute	1 1																		1 1													4	2	2	50	2	97
98 First Moscow Medical Institute																			0 1													1	0	1	100	1	98
99 Severo-Kayka Medical Institute																			0 1													1	0	1	100	1	99
100 Second Moscow Medical Institute																			0 1													1	0	1	100	1	100
YUGOSLAVIA																																					
101 Beogradskog Universiteta							0 1												0 1													2	0	2	100	2	101
102 Zabrebaskog Universiteta																			1 1													2	1	1	50	1	102
Totals	32	7	20	4	6	1	40	3	1	1	1	4	18	18	2	7	2	8	387	1	3	7	6	1	2	2	5	1	5	2	4	601	..	..	...	..	
Totals-Examined-Passed	23	7	9	4	5	1	26	2	1	1	1	3	12	6	2	7	2	3	137	1	3	6	6	1	2	2	3	1	1	2	3	...	283	..	...	..	
Totals-Examined-Failed	9	0	11	0	1	0	14	1	0	0	0	1	6	12	0	0	0	5	250	0	0	1	0	0	0	0	2	0	4	0	1	...	..	318	...	..	
Percentage Failed	28.1	0	55	0	16.7	0	35	33.3	0	0	0	25	33.3	66.7	0	0	0	62.5	64.6	0	0	14.3	0	0	0	0	40	0	80	0	25					52.9	
Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						

P—Passed; F—Failed.

practice require a certificate from the state board of examiners in the basic sciences. In eighteen states, Alaska, Hawaii and Puerto Rico an internship in a hospital in the United States is a prerequisite. Additional qualifications of individual states are given in footnotes of the table. Table 30 presents figures relating to physicians examined on the basis of credentials obtained in countries other than the United States and Canada by licensing boards in 1947. The figures represent both American and foreign born physicians educated abroad. Ninety-nine faculties of medicine and three licensing corporations are represented. There were 601 persons examined by thirty boards in the United States, Alaska, Hawaii and Puerto Rico, of whom 283 passed and 318 (52.9 per cent) failed. Graduates of the University of Vienna (Austria) represented the largest group, 67, who were examined in twelve states, with a failure percentage of 56.7. Fewer than 40 of the graduates of any other school were tested.

TABLE 31.--*Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada, 1930-1947*

	Number Examined	Passed	Percentage Failed
1930..........	167	92	44.9
1931..........	158	91	42.4
1932..........	182	96	47.3
1933..........	200	129	35.5
1934..........	285	170	40.2
1935..........	437	303	30.7
1936..........	588	382	35.0
1937..........	920	637	30.8
1938..........	1,164	716	38.5
1939..........	1,691	839	50.4
1940..........	2,088	948	54.7
1941..........	1,717	698	59.2
1942..........	1,630	890	45.4
1943..........	1,031	518	49.8
1944..........	691	325	53.0
1945..........	475	209	56.0
1946..........	495	221	55.3
1947..........	601	283	52.9
Total	14,520	7,547	48.0

The greatest number of these graduates examined by any one state was 387 in New York, of whom 137 passed and 250 (64.6 per cent) failed. No other state tested more than 40. Fewer than 5 were examined by sixteen states and the possessions.

Table 31 records the number of graduates of faculties of medicine abroad examined for medical licensure in the United States in eighteen years (1930-1947). In this period 14,520 were examined, of whom 7,547 passed and 48 per cent failed. The greatest number of failures occurred in 1941, when 59.2 per cent failed. At no time in this eighteen year period did fewer than 30.7 per cent fail. In 1936 the number of foreign graduates began to increase, so that in 1940 there were over three times as many tested as in 1936. Since 1940 there have been annual decreases, though the number examined in 1947 was higher than in 1946, but the annual total is still in excess of the number licensed annually prior to 1935 and before the increased migration of foreign physicians to this country from Europe.

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Nebraska..........	Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln.
Nevada..........	Dr. G. H. Ross, 215 N. Carson Street, Carson City.
New Hampshire..........	Dr. John S. Wheeler, 107 State House, Concord.
New Jersey..........	Dr. E. S. Hallinger, 28 West State Street, Trenton.
New Mexico..........	Dr. V. E. Berchtold, 141 Palace Avenue, Santa Fe.
New York..........	Dr. J. L. Lochner, 315 State Education Building, Albany.
North Carolina..........	Dr. Ivan Procter, 226 Hillsboro St., Raleigh.
North Dakota..........	Dr. G. M. Williamson, 4½ S. Third Street, Grand Forks..
Ohio..........	Dr. H. M. Platter, 21 West Broad Street, Columbus.
Oklahoma..........	Dr. F. C. Gallaher, 813 Braniff
Oklahoma..........	Dr. F. C. Gallaher, 813 Braniff Building, Oklahoma City.
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South Carolina..........	Dr. N. B. Heyward, 1329 Blanding Street, Columbia.
South Dakota..........	Dr. Gilbert Cottam, Capitol Building, Pierre.
Tennessee..........	Dr. H. W. Qualls, 1635 Exchange
Tennessee..........	Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis 3.
Texas..........	Dr. H. F. Connally, 1305 Amicable Building, Waco.
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Vermont..........	Dr. F. J. Lawliss, Richford
Virginia..........	Dr. K. D. Graves, 30½ Fr S. W., Roanoke.
Washington..........	Miss Virginia Wotherspoon,
West Virginia..........	Dr. N. H. Dyer, State Cap ton 5.

Officers of State Board of Medical Examiners Continued

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Canal Zone	Dr. M. C. Stayer, Balboa Heights.
Hawaii	Dr. S. E. Doolittle, 881 S. Hotel St. Honolulu 53.
Puerto Rico	Mr Luis Cuerto Coll, Parada 22,
Puerto Rico	Mr. Luis Cuerto Coll, Parada 22, Santurce.
Virgin Islands	Dr. J. S. Moorehead, Charlotte Amalie.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Seventeen states, the District of Columbia and Alaska have adopted by legislative action basic science requirements underlying the practice of the healing art A basic science law provides for the establishment of a board of examiners and requires that each person who desires to practice the healing arts appear before the board and demonstrate his knowledge of the basic sciences. The basic science boards have no licensing powers. A certificate in the basic sciences is a prerequisite to licensure.

TABLE 32.--*States Having Basic Science Laws and Year of Enactment*

Alaska	1946
Arizona	1936
Arkansas	1929
Colorado	1937
Connecticut	1925
District of Columbia	1929
Florida	1939
Iowa	1935
Michigan	1937
Minnesota	1927
Nebraska	1927
New Mexico	1941
Oklahoma	1937
Oregon	1933
Rhode Island	1940
South Dakota	1939
Tennessee	1943
Washington	1927
Wisconsin	1925

Connecticut and Wisconsin were the first states to adopt basic science legislation. Laws were passed in these two states in 1925. Alaska was added to the group in 1946. No legislation creating a basic science law was enacted during 1947. The states, and the year of enactment of their basic science law, are recorded in table 32.

The subjects in which examinations are conducted are shown in table 33. These subjects are specified by statute.

The examining boards have no authority to add any subjects or to refrain from examining in any subject, although the laws in some instances provide for certification without examination by the endorsement of a basic science certificate issued in another state, the examinations of the National Board of Medical Examiners or the acceptance of successful examinations in the required subjects by a licensing board. On the basis of a law passed in South Dakota in 1947 medical officers may use their military record as the basis for certification. All nineteen boards examine in anatomy, pathology and physiology, seventeen examine in chemistry, fifteen in bacteriology, nine in hygiene, two in diagnosis and one in public health.

The results of examinations held and the number of certificates issued on the basis of reciprocity or endorsement during 1947 are presented in tables 34 and 35 as reported by the respective boards. A candidate in applying for a basic science certificate is not required by law to mention his school of practice. However, by checking the biographic records of physicians and medical students on file in the office of the American Medical Association and various directories it has been possible to determine the profession of the majority of candidates. Thus it has been possible to tabulate the figures in four groups; namely, physicians and medical students, osteopaths, chiropractors and unclassified applicants. The last category includes those for whom it was not possible to determine the profession represented. In Rhode Island doctors of dentistry and in Connecticut naturopaths are included in the unclassified group. It is probable that others in this unclassified group include osteopaths, chiropractors and also naturopaths who have not been identified by the reference material available.

TABLE 33.--*Subjects Included in Basic Science Examinations*

	Examinations Required in							
	Anatomy	Bacteriology	Chemistry	Diagnosis	Hygiene	Pathology	Physiology	Public Health
Alaska	x	x	x	..	x	x	x	..
Arizona	x	x	x	..	x	x	x	..
Arkansas	x	x	x	..	..	x	x	..
Colorado	x	x	x	..	..	x	x	..
Connecticut	x	..	..	x	x	x	x	..
Dist. Columbia	x	x	x	..	..	x	x	..
Florida	x	x	x	..	..	x	x	..
Iowa	x	x	x	..	x	x	x	..
Michigan	x	x	x	..	x	x	x	x
Minnesota	x	x	x	..	x	x	x	..
Nebraska	x	x	x	..	x	x	x	..
New Mexico	x	x	x	..	..	x	x	..
Oklahoma	x	x	x	..	..	x	x	..
Oregon	x	..	x	..	x	x	x	..
Rhode Island	x	x	x	..	..	x	x	..
South Dakota	x	x	x	..	..	x	x	..
Tennessee	x	x	x	..	..	x	x	..
Washington	x	..	x	..	x	x	x	..
Wisconsin	x	..	..	x	..	x	x	..

There were 3,615 candidates examined by the nineteen boards in operation in 1947. The numbers examined in the various groups and the total examined by each board are shown in table 34. The majority (3,132) represented physicians or medical students, 147 were osteopaths, 61 chiropractors and 198 were placed in the unclassified group. Of all applicants 27.1 per cent failed. Of the physicians and medical students 23.2 per cent failed, osteopaths 34 per cent, chiropractors 68.9 per cent and unclassified 43.4 per cent. Among those who passed there were 2,405 physicians and medical students, 97 osteopaths, 19 chiropractors and 112 unclassified candidates. The basic science boards of Iowa and Florida examined the greatest number of applicants. Iowa examined 539 and Florida 512. Michigan and Minnesota tested more than 300 and Colorado, Oregon, Washington and Wisconsin more than 200. Alaska was the one board that reported no failures. The percentage of failures for physicians and medical students seems rather high, particularly when compared with the extent of failures before the state medical examining boards of the respective states.

TABLE 34.—*Applicants Examined in Basic Sciences, 1947*

	Physicians & Medical Studs.		Osteopaths		Chiropractors		Unclassified		Total Examined	Passed	Failed	Percentage Failed
	P	F	P	F	P	F	P	F				
Alaska	3	0	0	0	0	0	0	0	3	3	0	0.0
Arizona	44	0	1	0	1	0	0	0	66	46	20*	30.3
Arkansas	83	5	1	1	0	0	0	0	90	84	6	6.7
Colorado	168	21	6	0	0	0	5	1	201	179	22	10.9
Connecticut	161	4	2	3	1	5	2	0	178	166	12	6.7
District of Columbia	22	4	0	0	0	0	0	0	26	22	4	15.4
Florida	324	121	9	7	0	3	32	16	512	365	147	28.7
Iowa	157	249	37	22	2	5	19	48	539	215	324	60.0
Michigan	266	113	2	3	1	0	5	5	395	274	121	30.6
Minnesota	291	0	21	0	1	0	4	0	374	317	57*	15.2
Nebraska	83	24	0	0	0	0	0	1	108	83	25	23.1
New Mexico	49	14	11	0	0	0	2	0	76	62	14	18.4
Oklahoma	35	14	0	0	0	0	0	0	49	35	14	28.6
Oregon	147	72	3	3	0	0	1	5	231	151	80	34.6
Rhode Island	35	2	0	2	0	0	18	1	58	53	5	8.6
South Dakota	21	8	0	0	0	3	5	6	43	26	17	39.5
Tennessee	135	29	0	2	0	0	19	0	185	154	31	16.8
Washington	213	13	3	5	1	5	0	0	240	217	23	9.5
Wisconsin	168	34	1	2	12	21	0	3	241	181	60	24.8
TOTAL-Examined	3,132		147		61		198		3,615			
Totals - Passed	2,405		97		19		112			2,633		
Totals - Failed	727		50		42		86				982	
Percentage Failed	23.2		34.0		68.9		43.4					27.1

*Nature of practice undeterminable, since names of failures not supplied.

TABLE 35.--*Basic Science Certificates Issued by Examination, Reciprocity and Endorsement, 1947*

	Examination					Reciprocity Endorsement or Waiver					
	Physicians & Medical Studs.	Osteopaths	Chiropractors	Unclassified	Totals	Physicians & Medical Studs.	Osteopaths	Chiropractors	Unclassified	Totals	Registered
Alaska	3	0	0	0	3	17	0	0	0	17	20
Arizona	44	1	1	0	46	107	92	5	16	220	266
Arkansas	83	1	0	0	84	26	4	0	0	30	114
Colorado	168	6	0	5	179	56	13	5	2	76	255
Connecticut	161	2	1	2	166	0	0	0	0	0	166
District of Columbia	22	0	0	0	22	8	0	0	0	8	30
Florida	324	9	0	32	365	0	0	0	0	0	365
Iowa	157	37	2	19	215	0	0	0	0	0	215
Michigan	266	2	1	5	274	41	10	1	3	55	329
Minnesota	291	21	1	4	317	120	0	0	2	122	439
Nebraska	83	0	0	0	83	2	0	0	0	2	85
New Mexico	49	11	0	2	62	0	0	0	0	0	62
Oklahoma	35	0	0	0	35	1	0	0	0	1	36
Oregon	147	3	0	1	151	48	10	0	7	65	216
Rhode Island	35	0	0	18	53	7	0	0	0	7	60
South Dakota	21	0	0	5	26	52	2	1	9	64	90
Tennessee	135	0	0	19	154	114	0	0	0	114	268
Washington	213	3	1	0	217	0	0	0	0	0	217
Wisconsin	168	1	12	0	181	172	6	1	0	179	360
Totals	2,405	97	19	112	2,633	771	137	13	39	960	3,593

Osteopaths were tested in Arizona, Arkansas, Colorado, Connecticut, Florida, Iowa, Michigan, Minnesota, New Mexico, Oregon, Rhode Island, Tennessee, Washington and Wisconsin. Chiropractors appeared for certification before the boards of Arizona, Connecticut, Florida, Iowa, Michigan, Minnesota, South Dakota, Washington and Wisconsin.

It is the policy of the Arizona and Minnesota boards in reporting results of its examinations to omit the names of applicants who fail examinations. The number who fail are therefore recorded only in the total column.

Fourteen boards issued 960 certificates by reciprocity, endorsement, waiver or exemption. The number of successful applicants (3,593) registered by examination and by endorsement are recorded in table 35. Included in the total certified were 3,176 physicians, 234 osteopaths, 32 chiropractors and 151 unclassified persons. All but five boards certified candidates without examination, the greatest number so certified occurred in Arizona.

TABLE 36.—*Total Candidates for Basic Science Certification, 1927-1947*

		Physicians and Medical Students						Other Practitioners					
	No. of Boards	Examined	Passed	Failed	Percentage Failed	Endorsement	Total Certified	Examined	Passed	Failed	Percentage Failed	Endorsement	Total Certified
1927	5	305	279	26	8.5	26	305	22	15	7	31.8	1	16
1928	5	646	586	60	9.3	19	605	59	31	28	47.5	0	31
1929	7	668	610	58	8.7	75	685	66	31	35	53.0	0	31
1930	7	685	606	79	11.5	118	724	78	30	48	61.5	4	34
1931	7	680	586	94	13.8	141	727	107	48	59	55.1	0	48
1932	7	657	590	67	10.2	106	696	78	44	34	43.6	12	56
1933	8	601	527	74	12.3	121	648	60	30	30	50.0	10	40
1934	9	815	725	90	11.0	127	852	51	26	25	49.0	11	37
1935	10	882	761	121	13.7	110	871	74	33	41	55.4	4	37
1936	10	1,032	891	141	13.7	230	1,121	66	26	40	60.6	13	39
1937	12	1,231	1,061	170	13.8	192	1,253	113	41	72	63.7	10	51
1938	12	1,168	1,026	142	12.2	267	1,293	158	70	88	55.7	26	96
1939	14	1,141	1,013	128	11.2	727	1,740	218	97	121	55.5	294	391
1940	16	1,303	1,140	163	12.5	324	1,464	280	153	127	43.9	22	175
1941	17	1,768	1,560	208	11.8	280	1,840	356	191	165	46.3	73	264
1942	17	1,725	1,476	249	14.4	213	1,689	497	249	248	49.9	91	340
1943	18	2,330	2,098	232	10.0	296	2,394	389	211	178	45.8	86	297
1944	18	2,284	1,868	416	18.2	222	2,090	465	276	189	40.6	87	363
1945	18	2,576	2,146	430	16.6	412	2,558	397	193	204	51.4	172	365
1946	19	2,937	2,391	546	18.7	1,308	3,699	313	167	146	46.6	166	333
1947	19	3,132	2,405	727	23.2	771	3,176	406	228	178	43.8	189	417
Totals		28,566	24,345	4,221	14.7	6,085	30,430	4,253	2,190	2,063	48.4	1,271	3,461

In table 36 is included the number of candidates examined and certified by basic science boards for each year since and including 1927. In 1927, when five boards were functioning, there were 305 physicians examined, of whom 8.5 per cent failed and 22 other practitioners, of whom 31.8 per cent failed. By comparison in 1947 the nineteen boards in operation examined 3,132 physicians, of whom 23.2 per cent failed and 406 other practitioners, with 43.8 per cent failures.

In the twenty-one year period 28,566 physicians and medical students were examined, of whom 24,345 were successful in these examinations. In the same period 4,253 other practitioners were tested and 2,190 were successful. Of the physicians and medical students examined in twenty-one years, 14.7 per cent failed and 48.4 per cent of the other practitioners were unsuccessful. There were in this same period 6,085 physicians and 1,271 others certified without examination.

The principle of basic science legislation is to provide a means of insuring that all who seek licensure to care for sick and injured persons shall first possess a reasonable knowledge of the sciences fundamental to the healing art. The enforcement of such laws affects mostly the group classified as "other practitioners". This is particularly significant when one takes into account that the testing of individuals for basic science registration is made by nonmedical examiners. The results demonstrate that, in general, practitioners other than regular physicians are poorly equipped in the fundamentals of medicine and should not be entrusted to care for the health of the people.

Efforts are being made by the American Association of Basic Science Boards to provide information based on experience to states contemplating new basic science board legislation and to develop procedures to facilitate reciprocity arrangements. In some instances basic science certification by reciprocity is unnecessarily difficult because of otherwise unimportant differences in the laws of the various states. An analysis of basic science laws was presented by Dr. Walter L. Bierring, secretary of the Federation of State Medical Boards of the United States, before the February 1948 Annual Congress on Medical Education and Licensure.[3] In summarizing his remarks, Dr. Bierring commented on improvements that might be made in existing legislation which would produce even more effective results than are presented in the preceding paragraphs while at the same time they would facilitate the interchange of practicing physicians and relieve much of the conflict that now exists.

The present executive officer of each of the nineteen basic science boards is as follows:

OFFICIALS OF BASIC SCIENCE BOARDS

Arizona—Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

Arkansas—Mr. L. E. Gebauer, 701 Main Street, Little Rock.

Colorado—Esther B. Starks, D. O., 1459 Ogden Street, Denver.

Connecticut—Mr. C. M. Bakewell, 250 Church Street, New Haven.

District of Columbia—Dr. G. C. Ruhland, 6012 E. Municipal Building, Washington.

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[3] Federation Bulletin (March) 1948, to be published.

Florida—Dr. M. W. Emmell, University of Florida, Gainesville.
Iowa—Dr. Ben H. Peterson, Coe College, Cedar Rapids.
Michigan—Miss Eloise LeBeau, 101 N. Walnut Street, Lansing.
Minnesota—Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis 14.
Nebraska—Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.
New Mexico—Miss Marion M. Rhea, 144 E. Marcy St., Santa Fe.
Oklahoma—Dr. Frank C. Gallagher, 813 Braniff Bldg., Oklahoma City.
Oregon—Dr. C. D. Byrne, University of Oregon, Eugene.
Rhode Island—Mr. Thomas B. Casey, 366 State Office Building, Providence.
South Dakota—Dr. G. M. Evans, Yankton.
Tennessee—Dr. O. W. Hyman, 874 Union Avenue, Memphis.
Washington—Mr. Harry C. Huse, Olympia.
Wisconsin—Mr. William H. Barber, Watson and Scott Sts., Ripon.
Alaska—Dr. C. Earl Albrecht, Box 1931, Juneau, Alaska.

NATIONAL BOARD OF MEDICAL EXAMINERS

The medical licensing boards of forty-five states, the District of Columbia, Alaska, Hawaii, Puerto Rico and the Canal Zone recognize the certificate of the National Board of Medical Examiners as an adequate qualification for a medical license. During 1945 legislation was enacted in Indiana permitting licensure without examination of National Board diplomates. In 1946 Nevada temporarily suspended acceptance of the National Board certificate, but recognition was restored in 1947. Louisiana exempts diplomates from the state examin- if they have been licensed in some other state with which Louisana reciprocates. The provisions of the medical practice laws or state regulations of the following states are such that diplomates of the National Board are required to take an oral examination: Illinois, Maine, Rhode Island, South Carolina and Wyoming. A brief supplemental written examination is required in Michigan. The National Board's certificate is not recognized by the licensing authorities of Florida, Montana and Wisconsin. The states, territories and possessions of the United States endorsing the certificate of the National Board are listed in table 37.

TABLE 37.—*States Endorsing Certificates of the National Board of Medical Examiners*

Alabama
Alaska
Arizona
Arkansas
California
Canal Zone
Colorado
Connecticut
Delaware
Dist. of Columbia
Georgia
Hawaii
Idaho
Illinois[1]
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine[1]
Maryland
Massachusetts
Michigan[2]
Minnesota
Mississippi
Missouri
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Puerto Rico
Rhode Island[1]
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wyoming[1]

1. Oral examination required.
2. Brief supplemental written examination required.

The examinations of the National Board in the basic sciences are accepted in lieu of the examination in these subjects given by the basic science board of Connecticut, Iowa, Minnesota, Nebraska, Oklahoma, Tennessee and the District of Columbia.

Diplomates are admitted to the final examination of the Examining Board in England, of the Triple Qualification Board of Scotland and of the Conjoint Board in Ireland. Physicians holding the certificate of one of these licensing corporations desiring registration by the National Board are exempt from part I of its examination.

Diplomates are exempt from some of the qualifications required of the United States Public Health Service and the Mayo Foundation for Medical Education and Research.

The National Board was founded in 1915 and and the first examination for certification was given in October 1916. From that date and up to and including a test held in June 1921, eleven examinations were given and 268 candidates were certified. The results of the examinations given during this period are given in table 38.

TABLE 38.—*National Board Examinations, 1916-1921*

Date		Total Examined	Failed	Percentage Failed
October	1916	10	5	50.0
June	1917	12	3	25.0
October	1917	28	6	21.4
January	1918	20	2	10.0
April	1918	23	5	21.7
December	1918	16	1	6.3
June	1919	52	1	1.9
February	1920	48	12	25.0
May	1920	60	14	23.3
February	1921	16	5	31.3
June	1921	40	3	7.5
Totals		325	57	17.5

Since 1922 the examination has been given in three parts as follows: part I, a written examination in the basic sciences; part II, a written examination in five major clinical subjects and part III, a clinical and practical examination in six major clinical divisions and their component subjects or subdivisions. Parts I and II are given in approved medical schools throughout the country, while part III is given under the direction of local subsidiary boards in twenty-four centers at times sufficiently frequent to accommodate all eligible candidates.

Students of medical schools in the United States and Canada approved by the Council on Medical Education and Hospitals of the American Medical Association are admitted to the examinations of the National Board. In addition, graduates of the university medical schools of Great Britain and Ireland are accepted provided these graduates have been licensed to practice in the country in which the school attended is located.

The board's examinations are also accepted by many medical schools as part of their own examination and promotion procedure. At some of the schools the students are required to pass part I at the end of the second year and part II at the end of the fourth year. Other schools require that part II be passed at the end of the fourth year. Candidates who fail to to pass the National Board examinations are given a supplemental examination at most schools. The schools that require their students to take the National Board's examinations under one plan or another are Albany, Boston University, Buffalo, Duke, Emory, Georgetown, George Washington, Harvard, Long Island, New York Medical College, Ohio State, Syracuse, Tufts and Yale. In addition to the schools named there are a few others at which those students who voluntarily take and pass the National Board's examinations, either in part I or in part II, are excused from the corresponding final school examinations. This group of schools includes Colorado, Illinois, Loyola, Minnesota, Pennsylvania, Tulane and the Woman's Medical College. The National Board believes that such use of its examinations is of definite value to the board because it necessitates that the examination be kept in close step with present medical education in this country. It appreciates the responsibility that this places on its examinations as well as the confidence which the schools are placing in the fairness and quality of its examinations.

The balance of the tables enumerate the results of examinations given in parts I, II and III during 1947 and for each calendar year since 1922, including those who passed and failed examinations and those who were certified.

A candidate is eligible for part I who has met the premedical requirements and has completed successfully the first two years of work in an approved medical school. An incomplete examination is allowed candidates taking part I at the end of their second medical year in schools whose third year curriculums include courses in one or two subjects of this part. The examinations in the subjects not yet completed are therefore postponed and may be taken at any examination period after the candidate has completed them in his medical school. They are recorded in these statistics under the heading "Incomplete Examinations" and are excluded from the calculations referring to the percentage of failures. Any candidate not entitled to take an incomplete examination in part I may, if he so elects, take a divided examination by writing any four subjects at one time and the remaining two within thirteen months.

TABLE 39.—*National Board Examinations in Part I, 1922-1947*

Date	Total Examinations	Passed	Incomplete	Failed	Percentage Failed
March 1947	728	451	201	76	14.4
June 1947	1,508	780	606	122	13.5
September 1947	1,278	613	545	120	16.3
Totals	3,514	1,844	1,352	318	14.7
1922	388	263	58	67	20.3
1923	507	349	77	81	18.8
1924	591	415	69	107	20.5
1925	608	400	50	158	28.3
1926	625	436	104	85	16.3
1927	702	452	159	91	16.8
1928	843	533	231	79	12.9
1929	1,096	675	331	90	11.8
1930	1,260	801	345	114	12.5
1931	1,277	755	425	97	11.4
1932	1,307	847	371	89	9.5
1933	1,234	782	316	136	14.8
1934	1,241	809	347	85	9.5
1935	1,254	785	410	59	8.1
1936	1,344	858	363	123	12.5
1937	1,435	871	415	149	14.6
1938	1,654	986	508	160	14.0
1939	1,733	1,048	460	225	17.7
1940	1,653	1,069	375	209	16.4
1941	1,640	1,087	346	207	16.0
1942	1,867	1,204	471	192	13.8
1943	2,656	1,441	962	253	14.9
1944	4,228	2,325	1,465	438	15.9
1945	3,865	2,106	1,475	284	11.8
1946	3,148	1,695	1,189	264	13.5
1947	3,514	1,844	1,352	318	14.7
Totals	41,680	24,836	12,674	4,170	14.3

A candidate is eligible for part II who has passed part I and has completed successfully a four year medical course in an approved medical school.

TABLE 40.—*National Board Examinations in Part II, 1922-1947*

Date	Total Examinations	Passed	Incomplete	Failed	Percentage Failed
March 1947	576	566	0	10	1.7
April 1947	654	645	0	9	1.3
June 1947	315	311	0	4	1.2
September 1947	96	91	0	5	5.2
Totals	1,641	1,613	0	28	1.7
1922	109	90	0	19	17.4
1923	192	170	2	20	10.5
1924	267	227	0	40	15.0
1925	342	309	0	33	9.6
1926	381	334	1	46	12.1
1927	361	314	1	46	12.8
1928	410	371	1	38	9.3
1929	465	399	19	47	10.5
1930	620	543	7	70	11.4
1931	719	630	2	87	12.1
1932	732	674	0	58	7.9
1933	714	651	0	63	8.8
1934	633	583	0	50	7.9
1935	689	620	0	69	10.0
1936	768	716	2	50	6.5
1937	855	803	1	51	6.0
1938	861	815	0	46	5.3
1939	938	884	0	54	5.8
1940	1,028	963	9	56	5.5
1941	1,001	954	1	46	4.6
1942	1,072	1,031	0	41	3.8
1943	1,861	1,805	0	56	3.0
1944	1,405	1,350	0	55	3.9
1945	1,599	1,565	0	34	2.1
1946	1,824	1,781	0	43	2.4
1947	1,641	1,613	0	28	1.7
Totals	21,487	20,195	46	1,246	5.8

A candidate is eligible for part III who has passed parts I and II, is in possession of the M.D. degree and has satisfactorily completed a one year internship in a hospital approved for such training by the American Medical Association or by the Canadian Medical Association, or has served in a laboratory acceptable to the National Board.

Three examinations were given in part I in 1947 and four in part II, while tests in part III were held at various times during the year.

Tables 39 and 40 record the results of examinations given in parts I and II and include candidates who fail and are reexamined during the same year and those who pass parts I and II in the same year. Thus the figures shown represent examinations conducted rather than individuals examined.

During the year 1947, 3,514 examinations were given in part I; 1,844 passed and 318, or 14.7 per cent, failed. There were 1,352 incomplete examinations given. In calculating the percentage of failures the incomplete examination figures are excluded. In part II, 1,641 examinations were held; 1,613 passed and 28, or 1.7 per cent, failed. Incomplete examinations are seldom given in part II. There were none given in 1947.

Since 1922 a total of 41,680 examinations have been given in part I and 21,487 in part

II. During this period 24,836 passed part I and 20,195 passed part II. In twenty-six years there have been 4,170 failures in part I, 14.3 per cent, and 1,246, 5.8 per cent, in part II. The increasing acceptance by medical schools of the National Board's examinations as well as the increase in the number of students in medical schools as a result of the accelerated program which is still in effect in several schools is reflected in the totals for Part I and II of the board's examinations since 1942. The greatest number of examinations were given in part I in 1944, and in part II in 1943.

TABLE 41.--*Parts I, II and III, Excluding Duplications, 1922-1947*

Date	Total Examinations	Passed	Incomplete	Failed	Percentage Failed
1922..............	525	381	58	86	18.4
1923..............	775	594	79	102	14.7
1924..............	978	756	69	153	16.8
1925..............	1,167	915	50	202	18.1
1926..............	1,161	930	105	126	11.9
1927..............	1,248	947	142	159	14.4
1928..............	1,430	1,101	211	118	9.7
1929..............	1,723	1,280	319	124	8.8
1930..............	2,044	1,547	322	175	10.2
1931..............	2,218	1,632	410	176	9.7
1932..............	2,342	1,850	355	137	6.9
1933..............	2,277	1,806	280	191	9.6
1934..............	2,261	1,801	330	130	6.7
1935..............	2,368	1,831	408	129	6.6
1936..............	2,517	1,989	353	175	8.1
1937..............	2,735	2,151	397	187	8.0
1938..............	2,992	2,308	493	191	7.6
1939..............	3,221	2,476	443	302	10.9
1940..............	3,188	2,597	363	228	8.1
1941..............	3,318	2,749	332	237	7.9
1942..............	3,607	3,014	391	202	6.3
1943..............	4,514	3,671	606	237	6.1
1944..............	5,363	4,235	759	369	8.0
1945..............	5,514	4,468	886	260	5.5
1946..............	5,912	4,730	898	284	5.7
1947..............	6,249	4,965	1,002	282	5.3
Totals.........	71,747	56,724	10,061	4,962	8.0

In 1947, 1,743 tests were given in part III; 1,725 passed and 18, 1 per cent, failed. Results of examinations in this part in twenty-six years are given in table 41 and indicate that 17,228 candidates were tested, of whom 16,793 were granted the certificate of the board. Since the inception of the National Board in 1916, 17,061 certificates have been awarded. Physicians so certified are designated as diplomates and are privileged to use in any proper manner the initials D.N.B. if they so choose. The diplomates have formed a national organization entitled "The Associated Diplomates of the National Board," which meets at the time and place of the annual meetings of the American Medical Association and the Southern Medical Association. A membership emblem in the form of a gold key has been adopted. State committees have been appointed in all states.

The figures thus far presented represent examinations given. The number of individuals tested during any one year is recorded for the twenty-six year period in table 42. The classification as 'Passed" or Failed" in which more than one examination has been taken in a given year was based on the results of the last examination during the year in question. For example, if in 1947 a candidate passed part I but later in 1947 failed part II he is computed in the tabulation as having failed. On this basis figures computed indicate that there were 6,249 who took at least one of the tests of the National Board in 1947, as compared with 525 in 1922. The trend has been steadily upward. In 1947 the number of candidates was 337 greater than in the previous year. For the twenty-six year period, 71,747 individuals were examined in one or more of the annual examinations, of whom 56,724 passed, 10,061 took incomplete examinations, and 4,962, 8 per cent, failed.

The 1,725 physicians certified as diplomates last year represented sixty-two existing approved medical schools and one approved medical school now extinct in the United States, five approved schools in Canada, and eight foreign faculties of medicine (table 43). A few of the latter were graduates of the medical schools in continental Europe who had registered for the board's examinations before the limitations applied to foreign schools were put into effect.

In 1947, 2,312 diplomates were granted licenses to practice medicine on the basis of their National Board Certificate in forty-two states, the District of Columbia, Alaska, Hawaii and Puerto Rico. The number so registered by each licensing board is shown in table 44. Since the National Board was formed, 14,994 physicians have been licensed to practice medicine on the basis of their credentials from the board. In the same period 16,793 received the certificate of the board. The credential apparently was not used as a licensing medium by 1,799.

The constitution of the National Board of Medical Examiners provides for a membership of thirty representing the federal services,

TABLE 42--*National Board Examinations in Part 111, 1922-1947*

Date	Total Examinations	Passed	Failed	Percentage Failed
1922..........	22	22	0	0.0
1923..........	82	81	1	1.2
1924..........	126	120	6	4.8
1925..........	219	206	13	5.9
1926..........	255	243	12	4.7
1927..........	293	272	21	7.2
1928..........	322	306	16	5.0
1929..........	352	337	15	4.3
1930..........	420	401	19	4.5
1931..........	437	419	18	4.1
1932..........	550	522	28	5.1
1933..........	551	526	25	4.5
1934..........	567	549	18	3.4
1935..........	598	578	20	3.3
1936..........	576	547	29	5.0
1937..........	668	630	38	5.7
1938..........	706	682	24	3.4
1939..........	770	729	41	5.3
1940..........	792	771	21	2.7
1941..........	910	885	25	2.7
1942..........	1,054	1,041	13	1.2
1943..........	1,230	1,213	17	1.4
1944..........	1,168	1,146	22	1.8
1945..........	1,244	1,231	13	1.0
1946..........	1,633	1,612	21	1.3
1947..........	1,743	1,725	18	1.0
Totals...	17,288	16,793	495	2.8

the Federation of State Medical Boards of the United States, the Association of American Medical Colleges, the Council on Medical Education and Hospitals of the American Medical Association and members elected at large. The president of the board is Borden S. Veeder, M.D., the medical secretary, J.S. Rodman, M.D., and the executive secretary and treasurer, Mr. Everett S. Elwood. The address of the board is 225 South 15th Street, Philadelphia.

TABLE 43.-- *Diplomates from Individual Medical Schools, 1947*

University of Arkansas	1
College of Medical Evangelists	43
Stanford University	2
University of California	2
University of Southern California	1
University of Colorado	10
Yale University	67
George Washington University	64
Georgetown University	47
Howard University	14
Emory University	1
Loyola University	9
Northwestern University	15
University of Chicago	1
University of Illinois	5
Indiana University	13
State University of Iowa	28
University of Louisville	7
Louisiana State University	3
Tulane University	7
Johns Hopkins University	16
University of Maryland	7
Boston University	65
Harvard Medical School	143
Tufts College Medical School	117
University of Michigan	9
Wayne University	5
University of Minnesota	7
St. Louis University	16
Washington University	8
Creighton University	14
University of Nebraska	9
Albany Medical College	48
Columbia University	123
Cornell University	57
Long Island College of Medicine	93
New York Medical College	93
New York University	106
Syracuse University	27
University of Buffalo	82
University of Rochester	43
Duke University	66
Bowman - Gray School of Medicine	1
University of Cincinnati	3
Western Reserve University	4
University of Oklahoma	1
University of Oregon	4
Haneman Medical College	26
Jefferson Medical College	15
Temple University	8
University of Pennsylvania	39
University of Pittsburgh	2
Woman's Medical College	15
Meharry Medical College	23
University of Tennessee	1
Vanderbilt University	2
Baylor University	1
University of Vermont	22
Medical College of Virginia	2
University of Virginia	11
Marquette University	16
University of Wisconsin	1
Laval University	1
McGill University	16
University of Manitoba	1
University of Toronto	1
University of Western Ontario	2
Extinct Medical School	2
Foreign Schools	11
Total	1,725

EXAMINING BOARDS IN THE MEDICAL SPECIALTIES

Examining and certifying boards have been established in sixteen specialties. The American Board of Ophthalmolgy, the first of the examining boards in the specialties, was organized in 1917. Four additional boards were organized by 1933 (Otolaryngology in 1924, Obstetrics and Gynecology in 1930, Dermatology and Syphilology in 1932 and Pediatrics in 1933). In 1934 the Council on Medical Education and Hospitals of the American Medical Association formulated minimal standards governing specialty boards. The boards then in existence were subsequently approved as well as boards formed in later years. By 1940 fifteen approved boards were in operation. The latest specialty board was added to the group in 1947 by approval of the American Board of Physical Medicine.

TABLE 44.--*Licenses Granted on the Basis of National Board Certificates, 1947*

Alabama	3	New Hampshire	27
Arizona	9	New Jersey	78
Arkansas	3	New Mexico	4
California	244	New York	702
Colorado	9	North Carolina	63
Connecticut	114	North Dakota	7
District of Columbia	90	Ohio	55
Georgia	16	Oklahoma	8
Idaho	9	Oregon	11
Illinois	73	Pennsylvania	64
Indiana	12	Rhode Island	17
Iowa	33	South Carolina	10
Kansas	13	South Dakota	6
Kentucky	5	Tennessee	13
Maine	36	Texas	26
Maryland	47	Vermont	27
Massachusetts	272	Virginia	31
Michigan	32	Washington	33
Minnesota	36	West Virginia	8
Mississippi	2	Wyoming	3
Missouri	25	Alaska	1
Nebraska	9	Hawaii	8
Nevada	1	Puerto Rico	17
Total			2,312

Three boards certify candidates in subspecialties. The American Board of Internal Medicine certifies in allergy, cardiovascular disease, gastroenterology and pulmonary diseases. The American Board of Surgery certifies in proctology, the American Board of Pediatrics certifies in allergy. Regular board certification is a prerequisite for certification in these subspecialties. This function is also approved by the Council.

The regulations of the various boards regarding their organization, personnel, purposes and requirements for certification was published in the Educational Number of THE JOURNAL in 1947[4]. There is also included the regulations of the Advisory Board for Medical Specialties. This latter board was organized in 1933-1934 and acts in an advisory capacity to the specialty boards. It also functions in close collaboration with the Council on Medical Education and Hospitals.

A list of the approved specialty boards and their officers, the year of their incorporation and the number of certificates awarded

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[4] J. A. M. A. 134:1394 (Aug. 16) 1947.

TABLE 45.—*Approved Examining Boards in Medical Specialties*

Key No.	Name of Board	Year of Incorporation	Total Certificates Awarded to March 1, 1947	Total Certificates Awarded to March 1, 1948	Total Living Diplomates March 1, 1948
1.	American Board of Pediatrics Pres., Charles F. McKhann, 2103 Adelbert Road Cleveland, Ohio. Sec., Lee F. Hill, 710 Royal Union Building, Des Moines, Iowa.	1933	2,572	2,749	
2.	American Board of Psychiatry and Neurology Pres., John C. Whitehorn, Johns Hopkins Hospital Baltimore, Maryland. Sec., F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minnesota.	1934	2,440	2,836	2,720
3.	American Board of Orthopaedic Surgery Pres., Guy A. Caldwell, 3503 Prytania St., New Orleans. Sec., Francis M. McKeever, 1136 West 6th St., Los Angeles 14.	1934	1,042	1,214	1,153
4.	American Board of Dermatology and Syphilology Pres., Francis E. Senear, 55 E. Washington St., Chicago Sec., George M. Lewis, 66 E. 66th St., New York City.	1932	890	972	901
5.	American Board of Radiology Pres., E. L. Jenkinson, 2130 N. Lincoln Park, West, Chicago, Illinois Sec., B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minnesota.	1934	2,373	2,622	*
6.	American Board of Urology Pres., Gilbert J. Thomas, 9622 Brighton Way, Beverly Hills, California. Sec., Harry Culver, Route 13, Sunnyside Road, Minneapolis 13.	1935	1,136	1,245	1,170
7.	American Board of Obstetrics and Gynecology Pres., Walter T. Dannreuther, 580 Park Ave., New York City. Sec., Paul Titus, 1015 Highland Building, Pittsburgh 6.	1930	2,216	2,470	2,315
8.	American Board of Internal Medicine. Chrm., William S. McCann, 260 Crittenden Blvd., Rochester, N.Y Sec.-Treas., Truman G. Schnabel, 1704 Pine St., Philadelphia. Asst. Sec., William A. Werrell, One West Main St., Madison 3, Wisconsin.	1936	4,449	5,008	*
9.	American Board of Pathology Pres., N. C. Foot, 525 E. 68th St., New York City. Sec., Robert A. Moore, 507 Euclid Ave., St. Louis 10.	1936	1,178	1,462	1,427
10.	American Board of Ophthalmology Pres., Everett J. Goar, 1300 Walker Ave., Houston, Texas. Sec., S. Judd Beach, 56 Ivie Road, Cape Cottage, Maine	1917	2,564	2,657	2,306
11.	American Board of Otolaryngology Pres., H. I. Lillie, 102-110 Second Ave., S.W., Rochester, Minnesota. Sec., Dean M. Lierle, University Hospitals, Iowa City.	1924	3,988	4,085	*
12.	American Board of Surgery Chrm., Fordyce B. St. John, 100 Fort Washington Ave., New York City. Sec., J. Stewart Rodman, 225 S. 15th St., Philadelphia	1937	2,962	3,272	*
13.	American Board of Anesthesiology Sec., Paul M. Wood, 745 Fifth Ave., New York City 22.	1938	316	417	412
14.	American Board of Plastic Surgery Chrm., Jerome P. Webster, 630 W. 168th St., New York City 32. Sec., Louis T. Byars, 400 Metropolitan Bldg., St. Louis.	1937	171	175	156
15.	American Board of *Neurological* [illegible] [illegible] 384 Sec., [illegible] Howard Ave., New Haven 4, Conn.	1940	193	220	226
16.	American Board of Physical Medicine Chrm., Frank H. Krusen, 102-110 Second Ave., S.W., Rochester, Minnesota. Sec.-Treas., R. L. Bennett, 30 N. Michigan Ave., Chicago	1947	..	86	0
	Totals		28,496	31,498	12,786

Advisory Board for Medical Specialties

Pres., Robin C. Buerki, University of Pennsylvania, Philadelphia.

Sec., B. R. Kirklin, 102-110 Second Ave., Rochester, Minnesota.

TABLE 45.—*Approved Examining Boards in Medical Specialties (continued)*

Certification in Subspecialties	Total Certificates Awarded to March 1, 1947	Total Certificates Awarded to March 1, 1948	Total Living Diplomates March 1, 1948
By the American Board of Internal Medicine			
Allergy	95	106	*
Cardiovascular disease	361	382	*
Gastroenterology	183	208	*
Pulmonary diseases	163	174	*
By the American Board of Pediatrics			
Allergy	17	32	*
By the American Board of Surgery			
Proctology	79	80	*
Totals	898	982	*

* *Number deceased diplomates not available.*

prior to March 1, 1947 and the number certified to March 1, 1948 respectively appear in table 45. Likewise shown in these two categories are the numbers certified in the subspecialties. A third column in this table includes the total number of living diplomates for the boards that were able to supply such figures. On March 1, 1947 there were 28,496 physicians certified by the fifteen boards in operation. During 1947 the American Board of Physical Medicine was approved and certified 86 physicians. Altogether 3,002 physicians were certified from March 1, 1947 to March 1, 1948. Up to this latter date a total of 31,498 physicians have been certified by sixteen boards. Up to March 1, 1947, 898 certificates in subspecialties were awarded and during the ensuing year 84, bringing the total in the subspecialties to 982 as of March 1, 1948.

In the specialties of internal medicine and surgery, 5,008 and 3,272, respectively, have received the certificate of these boards. These boards were organized in 1936 and 1937. Otolaryngology, organized in 1924, has certified to date 4,085, while the oldest board in existence, ophthalmology, (organized in 1917) has certified 2,657. Internal Medicine certified the greatest number in 1947—559.

TABLE 46.—*Annual Specialty Board Certifications Since 1940-1948*

Year (Ended March)	Number of Boards in Existence	Number Certified	Accumulated Totals
1940	14	.....	15,853
1941	15	2,085	17,938
1942	15	1,756	19,694
1943	15	2,172	21,866
1944	15	1,578	23,444
1945	15	1,308	24,752
1946	15	1,320	26,072
1947	15	2,424	28,496
1948	16	3,002	31,498

Table 46 gives the annual number of specialists certified by all boards for nine years and the accumulated totals. The largest number (3,002) obtained certificates in the period from March 1, 1947 to March 1, 1948. The figures shown represent the total number of cerficates issued and include the numbers of living specialists. Ten boards which were able to supply the number of living diplomates reported 890 deceased.

In THE JOURNAL[5] there was published a list of residencies and fellowships in the specialities which are acceptable to the American boards in fulfilment of the clinical training requirements.

Eleven boards recognize training with a qualified preceptor as a substitute for special clinical training. The policies of the boards toward the acceptance of such training are briefly outlined in table 47. The time credit that is allowed varies but in all instances is decided on an individual basis. This type of training is not accepted by five boards, although it is to be considered for acceptance by one of these boards.

During the year a liaison committee was formed consisting of representatives of the Council on Medical Education and Hospitals and the Advisory Board for Medical Specialties for the purpose of interchange of ideas and discussion of problems of mutual interest.

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[5] J. A. M. A. 137:42 (May 1) 1948.

TABLE 47.—*Specialty Board Credit for Preceptorship Training*

	Credit Awarded	Preceptors Limitations			Maximum Clinical Training Credit
		Any Certified Board Member	Other Than Certified Board Members[1]	List of Preceptors Maintained	
Anesthesiology	Yes	Yes[1]	Yes[1]	No	2 years
Dermatology and Syphilology	Yes	Yes[1]	No	Yes	1 year
Internal Medicine	No	—	—	—	—
Neurological Surgery	Yes	Yes[1]	Yes[1]	No	No limit set
Obstetrics and Gynecology	Yes	Yes	Yes[1]	No	Average 6 mos. for each year of approved preceptorship.
Ophthalmology	Yes	Yes	Yes	No	No limit set
Orthopedic Surgery	Yes	Yes	No	No	See footnote 2
Otolaryngology	Yes	Yes	Yes	No	5 years
Pathology	No	—	—	—	—
Pediatrics	No	—	—	—	—
Physical Medicine	Yes	Yes[1]	Yes[1]	Yes	3 years
Plastic Surgery	Yes	Yes	No	Yes	Full Credit
Psychiatry and Neurology	No	—	—	—	—
Radiology	No	—	—	—	See footnote 3
Surgery	Yes	Yes[1]	No	No	2 years[4]
Urology	Yes	Yes[1]	No	No	3 years

1. Facilities and teacher qualifications must be approved by board.
2. Minimum of five years of training on a preceptorship will satisfy three year residency training requirement.
3. Credit for preceptor training to be considered at annual meeting, June 1948.
4. Preceptor training preceded by three years of acceptable residency training preferred.

The Fetish of Perpetual Expansion

We have unfortunately come to accept expansion as inevitable and unending. Nobody even visualizes a time when our hospitals will be emptied instead of crowded, when the conquest of disease will lead, as it logically should, to the diminution of disease. We go further and seem to assume that such expansion is something desirable in itself. We pride ourselves on the cultivation of virgin soil rather than on the harvest. Consider, for instance, the plans recently envisaged for the development of clinical photography (within certain limits a desirable thing). According to one of its enthusiastic advocates the department of the future must have a medically qualified director, an assistant director, two photographers who must also be trained nurses, a microscopist with additional training in photomicroscopy, a secretary, an instrument mechanic, a nurse, and a porter. Accommodation must consist of one large main studio, 40 by 20 ft. (12.2 by 6.1 metres), three subsidiary studios, 15 by 10 ft. (4.8 by 3 metres), three small studios for the photography of small objects, seven dark- and accessory-rooms, a secretary's office, a filming-room, a director's room, dressing cubicles, linen-cupboards, lavatories, storerooms, and a small surgery. This, we are told, would suffice for the first three years; after that extensions would be necessary. Among the users of the department would be the welfare department, which would wish to "show the return of a healthy glow to the cheeks of a convalescent." A second enthusiast tells us that medical photography must become "a subject in our medical schools on an equality with radiology." A third tells us that the staff will need a lengthy and complete training. Spaciousness, he says, would be necessary in order to counteract "the demoralizing effect of cramped quarters." But, one may ask, were Louis Pasteur, J. J. Thomson, and Gowland Hopkins demoralized by the cellars in which their best work was done?

This is perhaps an extreme case, but it illustrates an attitude of mind from which many of us suffer. Ambition in its most virtuous form impels us to raise ourselves higher from the ground on a pyramid of ever-increasing subordinates and accommodation. We measure our success by the material growth of the things which we create, forgetting meanwhile that in many human activities, such as increase of population and exploitation of new countries, this standard has had to be abandoned. We see limit, either actual or implied, in all directions; in the wide adoption of birth control, in the world shortage of many necessities, in the control of entry to the universities, and in the predetermination of the size of the new satellite towns. We can therefore hardly maintain our faith in the inevitability of perpetual expansion in the one feature of social life whose reduction is essential to the prevention of the reduction of everything else.--Roberts, Frangcon, M.D.: Where Are We Going? Medicine in a Planned Economy. *British Medical Journal*, March 13, 1948.

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SATURDAY, JUNE 12, 1948

EDITORIAL ANNOUNCEMENT

he absence of the compositors from their k continues. This issue of THE JOURNAL has been prepared in part by the use of Vari-Typer machines.

POSSIBLE ALLERGIC CHARACTER OF ACUTE RHEUMATIC FEVER

Periarteritis nodosa has been reproduced by Rich and Gregory[1] in the experimental animal by creating conditions similar to those of serum sickness in the human being. Cardiac lesions were seen in the sensitized animal with many of the histologic characters of the specific rheumatic granuloma. Clark and Kaplan[2] had noted in the heart and testes of 2 patients who had had serum sickness shortly before death cellular infiltrations composed of mononuclear histiocytes and showing a similar distribution to those seen in rheumatic conditions.

E. Florence McKeown[3] sensitized rabbits by either intravenous or intraperitoneal injection of 10 cc. of horse serum per kilogram of body weight. Cutaneous flushing accompanied by rise of temperature and regarded as a sign of serum sickness occurred on the twelfth to fourteenth day. At this time reaction to a skin test was positive. On the seventeenth day after the first injection of serum, the rabbits were given an intravenous injection of 1 cc. of serum. Two days later the initial large dose of serum was repeated, and the animals were killed one week later. This procedure establishes in the experimental animal conditions similar to those obtaining in serum sickness in man. The sensitization of rabbits by this method produced lesions confined to the cardiovascular system. These lesions, McKeown emphasizes, have a specific histologic structure and a specific distribution. In the heart the earliest lesion appears to be a focal necrosis of collagen. These focal necroses are found in the paravascular tissues, the interstitial septums of the myocardium and the fibrous tissue of the valve ring and valves themselves. Associated with this necrosis an inflammatory reaction develops that is composed, in the acute phase, of polymorphonuclear and eosinophilic leukocytes, which are eventually replaced by large mononuclear cells of peculiar character and by Anitschkow cells. This poses the problem as to whether this serum lesion is a reduplication of the rheumatic granuloma.

McKeown[4] traced the evolution of the primary lesion, the Aschoff nodule, as well as its age in 36 cases of rheumatic fever. The lesion appeared to be a focal necrosis of collagen, followed by emigration of polymorphonuclear leukocytes and eosinophils. Such lesions were found in the valves, valve rings, endocardium and interstitial septums of the myocardium. The histologic structure and site of the experimental lesion appear to be indentical with the specific granuloma of the naturally occurring disease. The analogy is further supported by the occurrence of endocardial and valvular lesions of similar nature. All degrees of valvulitis are present in experimental animals, and in some this is the only manifestation of a serum lesion in the heart. The serum lesion was found most frequently in the mitral valve and was not observed in the pulmonary leaflet. Where the necrosis of collagen is deep in the substance of the valve the cellular infiltration and subsequent evolution of the lesion are identical with those seen in rheumatic fever. When the necrosis is more superficial the necrotic collagen appears to be extruded onto the surface of the valve as a vegetation or to stimulate a decided proliferation of the overlying endocardial and immediately subendocardial cells, so that there is a close resemblance to the palisading of cells so often seen in the valve of the human heart.

Analysis of these valvular lesions shows their close identity with those of rheumatic valulitis in the frequent involvement of the mitral valve, the focal nature of the mitral lesion and the similarity in type of reaction. Every stage of the whole process finds its parallel in the evolution of rheumatic valvular disease. A study of the coronary arteries showed that these are impli-

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1. Rich, A.R., and Gregory, J.E.: The Experimental Demonstration that Periarteritis Nodosa is a Manifest- on of Hypersensitivity, Bull. Johns Hopkins Hosp. 5, 1943.

Clark, E., and Kaplan, B.I.: Endocardial, Arterial her Mesenchymal Alterations Associated with Serum in Man, Arch 24: 458, 1937.

eown, E.F. imental Serum Carditis and ionship t ic Fever, J. Path. & Bact. Oct.) 194

4. McKeown, E.F.: The Pathology of Rheumatic Fever, Ulster M.J., 14: 97. (Nov.) 1945.

5. MacIlwaine, Yvonne: The Relationship Between Rheumatic Carditis and Subacute Bacterial Endocarditis, J. Path. & Bact. 59: 557, (Oct.) 1947.

cated in precisely the same manner in the experimental animal as in rheumatic fever.

The investigators believe that the factor responsible for sensitization in acute rheumatism is the hemolytic streptococcus because of its frequent occurrence in the upper respiratory tract preceding an attack of acute rheumatic fever. Complete proof of this hypothesis, however, is still lacking.

The investigations of Yvonne MacIlwaine[5] throw light on the etiologic relationship between rheumatic and bacterial endocarditis. In a study of 34 cases of subacute and 12 cases of acute bacterial endocarditis she demonstrated that the myocardial Aschoff nodule is a specific reaction of the tissues to an attack of rheumatic fever and that the lesion evolves through an orderly and characteristic process of aging. A large number of the cases of acute and subacute bacterial endocarditis exhibited evidence of rheumatic arteritis. Aschoff nodules corresponding to the clinical duration of the endocarditis were observed in an even larger percentage of the cases. MacIlwaine concludes that in many cases of endocarditis lenta, and in a smaller number of cases of acute bacterial endocarditis, the bacterial lesion is superimposed on a heart which is at the time of infection the site of an active rheumatic carditis.

CANCER HEMOLYSINS

Anemia is a frequent associate of cancer. Gross[1] of the Veterans Administration Hospital, New York, has observed a direct destruction of erythrocytes by species-specific hemolysins formed or liberated by the cancer cells. Tumor extracts were made from 10 different spontaneous mammary cancers from female mice of a cancer strain and from 2 different transplanted tumors originated as mammary cancers in such females and carried through successive transplantations. Cell suspensions varying from 15 to 30 per cent were made by grinding tumor tissue in sodium chloride solution; the suspensions thus obtained were either repeatedly centrifuged or passed through a filter to form a clear sterile aqueous extract. One cubic centimeter of a 1 per cent washed suspension of red blood cells from the same strain of mice was mixed with 0.5 cc. of this extract, and the resulting mixture incubated at 37 C. for 2 1/2 to 3 hours. The tubes were then centrifuged briefly at 3,000 revolutions per minute, and the percentage of hemolysin estimated colorimetrically. Complete hemolysis was designated as 3 plus, partial hemolysis as 2 plus, 1 plus, or plus or minus, and no hemolysis as zero. Two to 3 plus hemolysis was obtained from practically all filtrates when tested in full strength. One plus hemolysis was recorded with 1:2 dilutions, and plus or minus to zero hemolysis with 1:3 dilutions of the same extract. Higher dilutions of the extracts gave negative results. Under the conditions of the experiments there were no positive readings with control extracts made from normal healthy organs such as the liver, kidney or spleen. The hemolytic action of the cancer extract was significantly less for erythrocytes prepared from heterogeneous strains of mice. Hemolytic action was not observed with rabbit, guinea pig or human erythrocytes. The cancer extract was not materially reduced in hemolytic titer by heating to 56 C. for 30 minutes. The extract, however, was completely inactivated at 100 C.

From these data the investigator concluded that strain-specific carcinoma hemolysins are at least a partial explanation of the frequent development of anemia in patients with cancer. Hemolytic tests with extracts from human cancer cells are now in progress.

Current Comment

CIVIL DEFENSE PLANNING

On March 27, 1948 the Secretary of Defense issued a memorandum to the various components of the National Military Establishment, dealing with the creation of the Office of Civil Defense Planning. This office was charged with (among other functions) preparing and submitting "to the Secretary of Defense, a program of civil defense for the United States, including a plan for a permanent federal civil defense agency which, in conjunction with the several states and their subdivisions, can undertake those peacetime preparations which are necessary to assure an adequate civil defense system in the event of a war." Mr. Russell J. Hopley, president of the Northwestern Bell Telephone Company of Omaha, was appointed director of the Office of Civil Defense Planning. Mr. Hopley is utilizing the advice and assistance of both governmental and civilian agencies to the utmost because of his belief that planning for civil defense involves every one. A medical advisory committee consisting of representation from the Armed Forces, the Public Health Service, the Childrens Bureau, the Department of Interior, the Veterans Administration, the National American Red Cross, the National Research Council, the American Medical Association, the American Dental Association, the American Public Health Association, the American Nurses Association, the American Veterans Association and the American Hospital Association has been created to assist Dr. Perrin H. Long, medical advisor to the Office of Civil Defense Planning, in drawing the plans which will cover the medical aspects of the Civil Defense Program. The medical advisory committee expects shortly to offer the broad outlines of a Medical Civil Defense Plan. Medical representation of civil defense planning groups at the state and community levels will be requested to keep in close contact with the activities of the Office of Civil Defense Planning; thus repetition and duplication of effort may be avoided and the coordination and integration of state and community plans into the over-all program will be made easier.

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[1] Gross, L.: Proc. Soc. Exper. Biol. & Med. 65: 292, 1947.

SARANAC SYMPOSIUM ON THE BERYLLIUM PROBLEM

A symposium held at the Saranac Laboratory for the Study of Chest Diseases at Saranac Lake, N. Y., during the week of Sept. 29, 1947 attempted to bring together available data on the health hazards resulting from exposure to the beryllium compounds. The term acute pneumonitis of beryllium workers was adopted for the acute phase, which is characterized by acute irritation of the upper respiratory tract including pharynx, trachea and bronchi, with occasional cases of acute pulmonary edema. The acute reactions have been observed only in the beryllium extraction plants where the exposure is largely due to the acid compounds of beryllium, the sulfates and the fluorides. Reactions have not been seen from contact with the metal itself. Persons so afflicted had complete clearing of the lungs, and in none had there developed the pulmonary granulomatosis observed with exposure to other compounds. All patients with acute pneumonitis had exposure either to beryllium sulfate or beryllium fluoride. Acute cases were not seen unless there had been exposure of the worker to one or the other acid compound, or to both. This fact has led some authorities to believe that beryllium should not be implicated in these acute cases because the fluorides and sulfates of many metals are similarly toxic. The chronic phase was named pulmonary granulomatosis of beryllium workers because the unit lesion is a chronic granuloma composed of proliferative cells with widely scattered giant cells occurring in the lungs. Because of associated thickening of the walls of the air sacs, interference with exchange of gases occurs, with a resulting shortness of breath on exertion and occasional deaths from failure of the right side of the heart. The radiologic and the microscopic appearance of this granulomatosis bears definite resemblance to sarcoidosis. It differs from sarcoidosis in that spontaneous remissions and disappearance of the roentgenologic shadows have not been noted and sarcoid-like lesions of bones were not observed in the beryllium variety. Another characteristic of this condition is its delayed onset, since it occurs in some cases as long as five years after termination of the exposure. In less than 2 per cent of those who are exposed do the pulmonary changes develop. This has led to the belief that an unknown factor is necessary as a trigger mechanism. Also, none of the patients so far observed have had or have contracted active tuberculosis. These chronic granulomatous lesions have occurred in three industries: (1) fluorescent lamp manufacturing, (2) beryllium-copper alloy casting and (3) sign tube shops. Despite much animal experimentation, nothing conclusive has developed. The transition from acute irritation to the chronic unit lesion has not so far been observed. A plea was made that attempts to create a threshold limit should not be made until much more is known about these materials. The greatest increased use of beryllium will probably be in alloys of copper and various other metals as a hardener. Proceedings of the symposium will be published by the Trudeau Fund as a memorial to Dr. Leroy Gardner.

CLEVELAND'S EMERGENCY MEDICAL SERVICE

For more than ten years the Academy of Medicine of Cleveland[1] has arranged to provide emergency medical service to the public at all hours, day and night, and has maintained at its own expense a twenty-four hour telephone service The effectiveness of this arrangement, which serves not only the public but the police and fire departments as well, is shown in a study of three hundred recent emergency calls, all of which, however, did not turn out to be emergencies. The average time that elapsed between a telephone call to the academy and contact with a physician was only 8.7 minutes, and that includes fourteen long calls of from 35 to 118 minutes. Not one of the long calls was a real emergency, and in each instance the circumstance surrounding the call explained the lapse of time. The average of 8.7 minutes does not show entirely the efficiency of this emergency service, as 69 per cent of the 300 calls were completed in five minutes or less and 83 per cent in ten minutes or less. The most difficult hour to obtain service was from 6 to 7 p.m., when physicians are on their way home or making calls on their own emergency patients. The length of time necessary to contact the physician was determined by the number of prior emergency calls and the desire of the patient to be served by a certain type of specialist. The telephone operator at the Academy of Medicine always asked for the name of the family physician and whether or not he had been called. A total of 77 physicians took care of the three hundred calls. In 71 per cent of 214 calls the first physician reached by the operator agreed to make the call. Certainly the income received by the 77 physicians was not their chief concern. Many patients who said that they could pay did not, some obviously could not, and a few who should pay would not. The physician sometimes was called at night into a dark neighborhood where the police or the family may have called a doctor, who was there when the academy physician arrived. Occasionally he responded to a frantic plea to find that a patient who had been injured on the way home had gone out again. Sometimes after making a call the physician found that his car had been broken into and the contents stolen. Such emergency service at night illustrates the sacrifice a doctor must make in attempting to attain the ideals of his profession. Methods similar to those used in Cleveland are now in effect in many other localities.

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[1] Caldwell, H.V.Y.: Bull. Acad. Med., Cleveland 33:7 (April) 1948.

ORGANIZATION SECTION

Official Notes

RADIO BROADCASTS FROM ANNUAL MEETING

Owing to the fact that the Annual Meeting of the American Medical Association coincides with the Republican National Convention, arrangements for radio broadcasts are very difficult and it is impossible to announce the exact time for many broadcasts in advance.

Following is the tentative schedule of broadcasts:

Network, station, date and time are indicated when available; otherwise information must be sought in newspaper radio columns during the Annual Meeting. It may even be necessary to record some of the programs and broadcast them during the week following the meeting.

(All time is Central Daylight time, which is Chicago time.)

NBC-WMAQ	Dr. Edward L. Bortz, President of the American Medical Association; Mrs. Luther H. Kice, President of the Woman's Auxiliary, and Dr. Elmer L. Henderson, Chairman of the Board of Directors, *The American Medical Association Serves the Nation.*
CBS-WBBM	Adventures in Science Program; Dr. R. L. Sensenich, President-Elect of the American Medical Association, *Medical Preparedness.*
NBC-WMAQ	Dr. W. W. Bauer (tentative), *Convention News and Highlights.*
CBS-WBBM	Dr. Louis Bauer, Dr. Charles Gordon Heyd, Dr. Henry B. Mulholland and Dr. A.C. Ivy, *Symposium on Medical Progress.*
ABC-WENR	Dr. Roy W. Fouts, Dr. F.F. Borzell and other delegates, tape recording of interviews at opening meeting of the House of Delegates.
Mutual-WGN	Tape recording interview at the American Medical Association Scientific Exhibit with winners of Gold and Silver Medals.
WMAQ	" Elizabeth Hart Presents ": Dr. L.I. Dublin, of the Metropolitan Life Insurance Company, *Progress in Maternal and Infant Welfare.*
WCFL	Dr. V.G. Townsend, U.S. Public Health Service, Washington, D.C., interviewed by Patricia Gleason: *Occupational Hazards in Industry.*
WAAF	Mr. Oren C. Durham, of Abbott Laboratories, *Hay Fever Pollen Research.*
WAIT	Dr. David Thurber, Rochester, N. Y., *Barbiturate Poisoning.*
WEDC	Dr. Willis Sackett Knighton, New York, *Glaucoma.*
WGES	Dr. G. Foard McGinnes, Washington, D.C., *Call for Blood.*
WIND	Dr. Claire L. Straith, Detroit, *Plastic Repair of Automobile Injuries.*
WJJD	Dr. O.P.Kimball, Cleveland, *Prevention of Endemic Goiter.*
WJOL	Dr. Laurence Jones, Beverly Hills, Calif., *Low Back Pain.*
WLS	Dr. F.S. Crockett, Lafayette, Ind., Art Page's guest on the " Dinner Bell Program" at 12:30 p.m. Tuesday, June 22.

Washington Letter

(From a Special Correspondent)

June 11, 1948.

World Health Bill to White House for Signing

The bill authorizing the United States to participate in the World Health Organization has been enacted into law. The House and Senate passed Senate Joint Resolution 98 and sent it to the White House for signature prior to President Truman's departure on his western speaking tour. The House act authorized an appropriation not to exceed $1,920,000 annually as this country's contribution to the organization. The measure also exempts the United States from commitments to any special legislative action of the World Health Organization, which is a part of the United Nations and is connected with the group's Economic and Social Council.

Search for Atomic Weapon Against Cancer

A joint research program of the Atomic Energy Commission and the Office of Naval Research is studying the effects of atomic radiations on people, animals and plants, and is emphasizing a search for atomic weapons against cancer. The program includes thirty-eight different research projects to be conducted in twenty-nine schools and hospitals in this country. The studies will include exploration of the effects of atomic radiation, similar to that released by atom bombs, on living cells and will also explore causes, diagnosis and treatment of cancer. Through the use of radioactive atoms, traced by detecting devices as they move through plant and animal bodies, the research workers expect to learn more about how nerves function and nourish themselves, how plants utilize minerals and how atomic radiations alter genes, living molecules which determine hereditary characteristics.

Scientists Advise Army on Training of Specialists

The United States Army is receiving the advice of more than fifty of the nation's leading civilian scientists, it was revealed here when they met to consult with officials on recruitment, training and the use of qualified young scientists to fill three hundred and fifty specialist positions in the Army Medical Service Corps. Speakers at the two day conference included Dr. Vannevar Bush, chairman, Research and Development Board, and Brig. Gen. George E. Armstrong, Deputy Surgeon General of the Army. Major R. Roland Kuhn was appointed chief of the medical allied sciences section of the Medical Service Corps.

Committee Approves Clinic for Federal Employees

The House Appropriations Committee approved the continuation of the experimental federal health clinic in Denver, which is regarded here as indicating that governmentwide health clinics may be expected in the next two years. Committee members who expressed fear that the project may be "an attempt toward socialized medicine" were shown communications from the American Medical Association endorsing the plans. The program calls for: treatment of on the job illness and dental conditions requiring emergency attention; preemployment and periodic examinations; referral of employees to private physicians and dentists, and preventive programs relating to health.

GOVERNMENT SERVICES

ARMY

WALTER REED'S BUST IN HALL OF FAME

For the ceremony of unveiling Walter Reed's bust in the Hall of Fame on the campus of New York University, May 20, the printed program contained excerpts from letters written in longhand by Major Reed to Major J. R. Kean and to Mrs. Reed, his wife, at the time his famous experiments were under way and when the discovery of the method of transmission of yellow fever was made in 1900. The program contains also a picture of the birthplace of Major Reed in Belroi, Va.; of Camp Lazear where the experimental work was done; of the shack where some of the experiments were carried on; of the flight of the population during outbreaks of yellow fever in Newport News, Va., and other Southern states; of Reed's colleagues in the experimental work; of medals awarded; of the U. S. Army Walter Reed General Hospital, and a list of the approximately one hundred Americans whose names have been inscribed in the Hall of Fame at the university. Major Reed is the only physician in the list.

The bust of Major Reed was unveiled by his son, Major General Walter L. Reed, U. S. Army (retired). The Surgeon General of the Army, Major General Raymond W. Bliss, paid tribute to Major Reed. Dr. Wilbur A. Sawyer, executive secretary of the Organizing Committee of the fourth International Congresses on Tropical Medicine and Malaria, gave the address. Dr. Edward I. Salisbury, medical director, United Fruit Company, made the presentation and Gladys Swarthout of the Metropolitan Opera Company sang a number of selections.

MEDICAL MEETING IN KOREA

During the monthly meeting of officers of the Army medical department in Korea at the 34th General Hospital, April 21, many cases were presented during ward rounds and conferences, following which Capt. Rudolph H. Beckert read a paper on "Infections of the Lower Portion of The Urinary Tract," discussed by Lieut. Ross H. Miller, of the 382d Station Hospital. Capt. Harry C. Swanstrom, 34th General Hospital, presented a paper on "Cutaneous Medicine," discussed by Major M. B. Guthrie, dermatologic consultant Lieut. Manuel D. Altamirano, parasitologist, discussed "Intestinal Parasitic Infections in Korean Food Handlers." Capt. Chester T. Hino discussed "The Sanitary Habits of Korean Food Handlers," and Major M. B. Guthrie, "The Treatment of the Common Dermatoses." About sixty-five officers' attended, including Brig. Gen. James A. Bethea, surgeon, F. E. C.; Col. J. A. Isherood, radiologic consultant, and Lieut. Col. Rosalie B. Calhoun, director of nurses. A dinner in honor of General Bethea was held at the officer's club A bus met train 6 from Pusan to transport visiting officers to the meeting.

ARMY MEDICAL LIBRARY

The Army Medical Library has adopted the principle of free loan of microfilms for research workers. Such films may be retained for ninety days, and requests for them should be submitted on standard order forms through local libraries, research institutes or government agencies. Those who wish to keep the films permanently and those who wish photostats may obtain them at 50 cents per unit.

Representatives of the Army Medical Library have been visiting library schools to recruit candidates for positions in the Subject Cataloging Section. The qualifications include good subject knowledge of medicine and good foreign language knowledge. The salary range for this grade P-2 is $3,397.20 to $4,149.60.

SELECTED FOR SPECIAL CIVILIAN COURSES

The Surgeon General announces the selection of the following medical officers for specialized courses in civilian institutions:

Lieut. Col. Victor R. Hirschmann, training in mycology, Duke University School of Medicine, Durham, N. C.

Lieut. Col. Maurice C. Davidson, course in clinical heart disease; Harvard Medical School, Boston.

Col. Robert S. Brua, training in orthopedic surgery at Carrie Tingley Hospital for Crippled Children, Hot Springs, N. Mex.

Major Walton N. Edwards, a course in pediatrics, University of California Medical Center, San Francisco.

Lieuts. Flora Moore, A. N. C., and Blanche Zukowski, A. N. C., course in anesthesiology, St. Mary's Hospital, Galveston, Texas.

Col. George H. Donnelly and Lieut. Col. Merrill H. Judd, course in surgical anatomy, Cornell University Medical College, N. Y.

Major John E. Boysen, course in industrial medicine, Kettering Laboratory of Applied Physiology, University of Cincinnati College of Medicine.

EDGAR E. HUME PROMOTED

Col. Edgar Erskine Hume, M.C., has been promoted to the rank of brigadier general. The stars of his rank were presented in a surprise ceremony at the home of Major General David G. Barr on his arrival in China, April 27. General Hume during the recent war held the temporary rank of brigadier general; participating in the African, Sicilian and Italian campaigns. He was chief of public health in Sicily in 1943, chief of allied military division for Fifth Army from 1943 to 1945 and assistant chief of staff of the U. S. forces in Austria in 1945. He is a graduate of Centre College, Danville, Ky., and Johns Hopkins University Medical School, where he also received the degree of doctor of public health. He also holds honorary degrees from American and foreign universities.

APPOINT CHIEF OF ALLIED SCIENCES SECTION

The Surgeon General announces the appointment of Major F. Roland Kuhn as chief of the Medical Allied Sciences Section of the Medical Service Corps. Fourteen professional and scientific societies were called to the Surgeon General's office in May to advise on recruitment, training and use of qualified young scientists to fill three hundred and fifty specialists' positions in the Medical Corps of the Medical Department. Major Kuhn, who is bacteriologist at the Army Medical Research Department and Graduate School in Washington, presided. Major Kuhn received a Ph.D. at the University of Chicago in 1936 and did research there and at the University of Georgia until 1942, when he entered the Army. He served overseas in the India-Burma theater as bacteriologist with the 29th Medical Laboratory and later with the 6th Army Medical Laboratory before coming to Washington, D.C.

AWARDS AND COMMENDATIONS

Captain Frank L. Richardson

The Silver Star was awarded to Capt Frank L. Richardson, M. C., U. S. A., now of Portland, Ore., for gallantry in action in Luzon, Philippine Islands, on Dec. 8, 1941. The citation reads as follows: When large forces of enemy aircraft attacked a small airstrip on the west coast of Luzon, Capt. Richardson, surgeon, 3d Pursuit Squadron, left his regular station in a medical dugout during a strafing and bombing attack, and without regard for his personal safety proceeded to the fire-swept area where he administered medical aid to the wounded and rescued several men from burning buildings. By his indomitable spirit and willingness to risk his life for the welfare of his comrades, Captain Richardson set an example of outstanding courage and exemplified the highest traditions of military service. Dr. Richardson graduated from the University of Minnesota School of Medicine in 1937 and entered military service in February, 1941.

NAVY

RESIDENCY IN GENERAL PRACTICE

The Surgeon General of the Navy, Rear Admiral Clifford A. Swanson, announces that a new residency in general practice will be inaugurated in naval hospitals July 1. The program will cover a period of three years, during each of which medical officers will receive six months of training in general medicine and related specialties and six months in general surgery and related specialties. Instruction will be provided by the staffs of naval hospitals and by outstanding civilian visiting staffs.

NAVAL FLIGHT SURGEONS

Fifteen Naval Medical officers, three Public Health Corps officers and one medical officer of the Brazilian Air Force recently received designations as naval flight surgeons on completion of a course of study at the Naval Air Station, Pensacola, Fla. Following are the names of those designated as naval flight surgeons.

Lieut. (jg) Joseph Bader (MCR), U. S. N. R., Edinburg, Texas.

Lieut. (jg) John M. Clark (MCR), U. S. N. R., Milwaukee.

Lieut. (jg) William J. Dowling (MCR), U. S. N. R., Oklahoma City.

Lieut. (jg) Richard H. Hardin (MC), U. S. N., Rocky Mount, N. C.

Sr. Asst. Surgeon William A. Himmelsbach, U. S. P. H. S., Northhmpton, Mass.

Lieut. (jg) Bruce C. Holman (MC), U. S. N., Bainbridge, N. Y.

Lieut. (jg) Ernest L. MacQuiddy Jr. (MCR), U. S. N. R., Omaha.

Lieut. (jg) Harry B. McGee (MCR), U. S. N. R., Saginaw, Mich.

Lieut. (jg) Walter A. McLeod Jr. (MCR), U. S. N. R. St. Petersburg, Fla.

Lieut. (jg) Richard D. Nauman (MC), U. S. N., Richmond, Va.

Lieut. (jg) Paul H. Powell Jr. (MCR), U. S. N. R., Woodville, Texas.

Lieut. (jg) Thomas J. Reeves (MCR), U. S. N. R., Waco, Texas.

Lieut. (jg) Robert J. Remmer (MCR), U. S. N. R., Utica, N. Y.

Asst. Surgeon Henry C. Savage, U. S. P. H. S., Ogden, Utah.

Lieut. (jg) Donald W. Stechschulte (MCH), U. S. N. R., Windber, Pa.

Asst. Surgeon Alan F. Thometz, U. S. P. H. S., Oak Park, Ill.

Capt. Fernando R. Santos, Brazilian Air Force.

AVIATION MEDICAL EXAMINERS

Twenty-three Naval Medical Officers received their designations as aviation medical examiners at the Naval Air Station, Pensacola, Fla., after completing a twelve week course of classroom, laboratory and field work. Following are the officers who were graduated as aviation medical examiners:

Lieut. (jg) John M. Barb (MRC), U. S. N. R., Camden, N. J.

Lieut. (jg) Bruce B. Barnhill (MC), U. S. N., Corning, Ark.

Lieut. (jg) Victor F. Carey (MCR), U. S. N. R., Downsville, La.

Lieut. (jg) Louis A. Collins, Jr. (MC), U. S. N., Augusta, Ga.

Lieut. (jg) Rene A. Desjardins (MCR), U. S. N. R., Salem, Mass.

Lieut. (jg) Robert A. Driscoll (MCR), U. S. N. R., Milton, Mass.

Lieut. (jg) Joseph E. Foehr (MCR), U. S. N. R., Garden City, N. Y.

Lieut. (jg) Sidney C. Foster (MCR), U. S. N. R., South Orange, N. J.

Lieut. (jg) James F. Grant (MCR), U. S. N. R., Syracuse, N. Y.

Lieut. (jg) James R. Guthrie (MCR), U. S. N. R., Greensburg, Ind.

Lieut. Comdr. Henry B. Jenkins (MCR), U. S. N. R., Stillwater, Okla.

Lieut. (jg) Richard F. Jones (MCR), U. S. N. R., Tacoma, Wash.

Lieut. (jg) Clarence J. Kasales (MCR), U. S. N. R., Tamaqua, Pa.

Lieut. (jg) Harry T. Linger (MCR), U. S. N. R., Clarksburg, W. Va.

Lieut. (jg) Thomas G. Lyons (MCR), U. S. N. R., Stockton, Calif.

Lieut. (jg) Clyde F. Newman Jr. (MCR), U. S. N. R., Shreveport, La.

Lieut. (jg) John M. Packard (MC), U. S. N., Saranac Lake, N. Y.

Lieut. Comdr. Lloyd E. Ragan (MCR), U. S. N. R., David City, Neb.

Lieut. (jg) Holley V. Reed (MCR), U. S. N. R., Newburgh, N. Y.

Lieut. (jg) Warren G. Strout (MCR), U. S. N. R., Dexter, Maine.

Lieut. (jg) John W. Tope III (MCR), U. S. N. R., Oak Park, Ill.

Lieut. (jg) Calvin W. Tribiano (MCR), U. S. N. R., Staten Island, N. Y.

NEW REGULAR OFFICERS

The following additional members of graduating classes of medical schools have accepted appointments as lieutenants (junior grade) in the Medical Corps of the Regular Navy: Frank H. Austin Jr., Dallas, Texas; David H. Beyer, St. Paul; Robert B. Bunker, Westwood, Mass.; Frank D. Burns, Harrisburg, Pa.; LeRoy K. Branch, Lettsworth, La.; Deck E. Chandler, Salt Lake City; Frederick E. Drew, New Orleans; Raymond W. Lawrence, Staten Island, N.Y.; Ernest G. McKay, Tampa, Fla.; Wayne S. McKinley, Brookville, Pa.; John R. McLaren, Blairsville, Pa.; Deane E. McLeod, Brookville, Pa.; John C. Ready, Arlington, Mass.; Francis D. Riley, Philadelphia; William A. Snyder, Baltimore; Charles V. Treat, Jamestown, N. Y.; Harvey F. Watts, Philadelphia; Martin G. Webb Jr., Glen Olden, Pa.; John D. Wilson, Beaver, Pa., and Robert J. Zullo, Port Reading, N. J.

Medical officers on active reserve status who have recently accepted appointments in the Medical Corps of the Regular Navy include the following: Lieut. Comdr. Ralph L. Eslick, Raytown, Mo.; Lieut. (jg) John P. Colmore, Noroton Heights, Conn.; Lieut. (jg) Verne K. Harvey Jr., Alexandria, Va.; Lieut. (jg) Garner L. Lewis, Kingston, N. Y., and Lieut. (jg) James T. Proctor, Kansas City, Mo.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

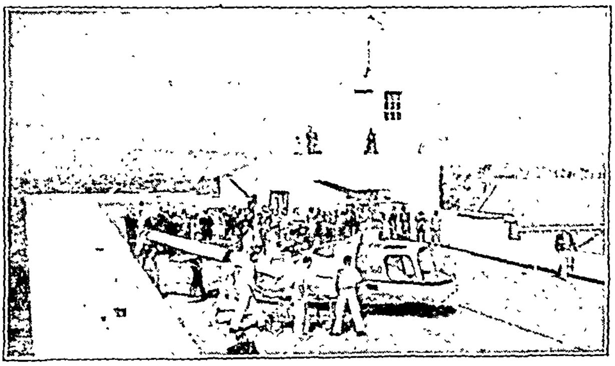
ARIZONA

New State Tuberculosis Association.—The thirty year old Arizona Antituberculosis Association was voted out of existence at the organization's annual meeting in Phoenix January 23, and the new Arizona Tuberculosis and Health Association was formed to take its place. E. W. Montgomery, Phoenix, was named president.

State Medical Election.—At the annual meeting of the Arizona State Medical Association in Phoenix, May 19-21, Dr. Harold W. Kohl, Tucson, became president. Other officers for 1948-1949 are: Drs. Robert S. Flinn, Phoenix, president-elect, Frank J. Milloy, Phoenix, secretary, and Clarence E. Yount, Prescott, treasurer. The state society formed its first Fifty Year Club. Charter members included Drs. Francis W. Allen, Tucson, Lewis A. W. Burtch, Phoenix, Timothy T. Clohessy, Phoenix, Guy H. Fitzgerald, Tucson, Delamere F. Harbridge, Phoenix, Robert N. Looney, Prescott, William R. Lyon, Tucson, E. Payne Palmer, Phoenix, Harry A. Reese, Yuma, Alexander M. Tuthill, Phoenix, and Clarence E. Yount, Prescott, They were presented bronze plaques at the dinner meeting.

CALIFORNIA

The First Hospital Heliport.—Dedication of the two hundred and fifty bed Herrick Memorial Hospital of Berkeley took place May 9; three days later its roof heliport, believed to be the first of any hospital, was opened. Formerly the Berkeley Hospital, Herrick Memorial Hospital has incorporated many of the old buildings. Modern features include a pneumatic tube system for the transfer of messages, records and drugs from department to department and a radio call system throughout the hospital. The helicopter ambulance provides an emergency facility which has been designed with elevators running directly from the heliport to the operating room. Herrick Memorial Hospital maintains an emergency hospital for citizens of Oakland, Berkeley, Albany and other adjacent areas. The heliport is expected to help solve the hospital bed shortage in rural communities.



Helicopter on hospital roof.

CONNECTICUT

Yale University Council Medical Affairs Committee.—The Yale University Council of nineteen standing committees has been created to study the major constituent parts and activities of the university and develop plans for their support. The council is composed of alumni from various sections of the country. Chairman of the committee on the Division of Medical Affairs is Reginald G. Coombe, president, board of managers, Memorial Hospital for Treatment of Cancer and Allied Diseases, New York. Other members include Thomas P. Murdock, chairman of the council, Connecticut State Medical Society, Meriden, Conn ; Barclay Robinson, Chairman, executive committee, Hartford Hospital; Robert E. Hunter, Pasadena, Calif., and Daniel C. Elkin, Whitehead Professor of Surgery, Emory University School of Medicine, Atlanta, Ga. Once a year each committee will report its findings and recommendations to the council as a whole, to be approved and transmitted to the president and the University Corporation.

ILLINOIS

Results of Hearing Survey.—Audiometric examinations given to 20,644 pupils in one hundred and eighty-eight public and parochial schools in Will County during the past seven months indicated that almost 8 per cent of all children have a hearing deficiency in one or both ears. The pilot survey was conducted by representatives of the University of Illinois College of Medicine, the Illinois Eye and Ear Infirmary, the Division of Services for Crippled Children and the Will County Department of Health, together with cooperating agencies. The children were examined by Drs. Arnold A. Grossman and Richard E. Marcus, Chicago, at seventy-seven different otologic clinics throughout the county. Those requiring further care, either to rehabilitate or to conserve hearing, were referred for definite treatment to the local otologists and general practitioners. Recommendations for specific educational requirements for those found to have handicapping hearing losses will be prepared by a special subcommittee before next September. The Will County hearing project is expected to serve as a model for future hearing conservation programs in other counties of the state.

Chicago

Dr. Ivy Appointed to Argonne National Laboratory.—Dr. Andrew C. Ivy, vice president of the University of Illinois in charge of the Chicago Professional Colleges, has been appointed to the board of the Argonne National Laboratory for a period of three years. Dr. Ivy was nominated for the position by the unanimous vote of the Council of Representatives of the participating institutions of the laboratory.

Ophthalmological Society.—The Chicago Ophthalmological Society on May 19 elected Dr. Arlington C. Krause president and Dr. J. Robert Fitzgerald secretary-treasurer. At the society's annual second Clinical Conference, November 28-December 4, special attention will be given to the pathologic and clinical aspects of glaucoma and retinal diseases, and advances in ophthalmic therapeutics. For information address Miss Maud Fairborn, 8 West Oak Street, Chicago 10.

Commemorate Founding of University Clinics.—The Alumni Association of the University of Chicago School of Medicine, commemorating the twentieth anniversary of the founding of the University Clinics, will hold its first alumni-resident staff reunion banquet at 6 p.m. Wednesday, June 23, at the Shoreland Hotel. Invitations have been sent to more than eight hundred persons. The speakers include: Chancellor Robert M. Hutchins, Drs. Lowell T. Coggeshall, Lester R. Dragstedt, Walter L. Palmer, Lucien A. Gregg and John Van Prohaska. Dinner reservations may be made through Miss Marie J. Eckert, secretary, Medical Alumni Association, 950 East 59th Street, Chicago 37.

KANSAS

William Menninger Honored.— Dr. William C. Menninger, Topeka, who was chief of the neuropsychiatric consultants' division in the Surgeon General's Office of the Army during the war, assumed office as president of the American Psychiatric Association at its one hundred and fourth meeting in Washington in May. At the same meeting Dr. Menninger was awarded the Chevalier of the French Legion of Honor presented to him by Lieut. Gen. Maurice Mathenet, military attaché of the French Embassy.

Name Head of Department of Bacteriology.— Lawrence W. Slanetz, Ph. D., will become professor of bacteriology and head of that department at the University of Kansas School of Medicine, Lawrence-Kansas City, on July 1, succeeding Dr. Noble Sherwood, head of the department for thirty years, who has passed the age of mandatory retirement from administrative duties but will continue to teach. Dr. Slanetz has been at the University of New Hampshire since 1932 and since 1938 has been bacteriologist of the state agricultural experiment station at Durham, N.H.

MAINE

State Medical Meeting.—The Maine Medical Association will hold its annual meeting at Poland Spring House, Poland Spring, June 20-22, under the presidency of Dr. Stephen A. Cobb, Sanford. A symposium on hypertension and round table discussions will take place Tuesday morning. Four general practitioner conferences, the daytime feature of the scientific program, will run from 9:30 to 11:30 a.m. and 2 to 4:00 p.m. on Monday and Tuesday. The annual dinner will be held at 7 p.m., when presentation of Fifty-Year Medals will be made. Banquet speakers will be Major General Lewis B. Hershey, Washington, D.C.

Graduate Study at Bar Harbor Laboratory.—The Roscoe B. Jackson Memorial Laboratory at Bar Harbor has established a program of graduate study which will be developed in cooperation with leading graduate schools. Students must satisfy residence and course requirements of the graduate school of their choice, and be sponsored by a staff member of the Jackson Laboratory, where at least part of the work will be done. Current research at the laboratory centers on the relation of genetics to growth processes and to the development of social behavior. Some part time assistantships at the laboratory are available. Inquiries should be addressed to Graduate Study Committee, Roscoe B. Jackson Memorial Laboratory, Box 78, Bar Harbor, Maine.

MICHIGAN

Extend Rapid Treatment Service.—The Michigan Rapid Treatment Center for venereal disease, Ann Arbor, has established a service of special benefit to physicians and patients in rural areas. Any practicing physician in Michigan may send his patient to the center for diagnosis of syphilis and for recommendations regarding treatment. The new service affords consultation not otherwise readily available in many sections of the state; it will allow the patient to be treated by his own physician in his home locality. The center has treated 10,000 patients with venereal disease referred from practicing physicians and clinics during the past four years; it now admits about 200 patients a month for treatment, has a medical officer in charge and, normally, three resident physicians. Personnel of the new consultation service will afford the benefit of their specialized knowledge to a greater share of the state's population.

NEW JERSEY

Atomic Research.—Robert Ballentine, Ph. D., of Columbia University, New York, has been appointed effective July 1, an associate research specialist in the Rutgers University Bureau of Biological Research. He will be assigned for one year to the Brookhaven National Laboratory, which is supported by the United States Atomic Energy Commission, to train personnel and to make available special technics to universities for promotion of research in radioactive isotopes. Dr. Ballentine, having received his doctor's degree from Princeton, joined the staff of Columbia University in 1942 and in 1946 took a year's leave of absence to accept the John Simon Guggenheim Memorial Foundation fellowship, working at the California Institute of Technology on organic chemical approaches to protein structure.

NEW YORK

Occupational Therapy in State Institutions.—Extension of occupational therapy to all patients whom it can benefit in the twenty-six hospitals and schools of the New York State Department of Mental Hygiene has been made possible by the provision of two hundred and nine new positions, Dr. Frederick MacCurdy, Commissioner of Mental Hygiene, has announced. The positions became available through funds recommended by Governor Dewey and approved by the legislature. The department of mental hygiene recently completed a survey to determine the occupational therapy needs of all types of patients in the state hospitals and schools. Most of the new positions are at the occupational instructor and the occupational aide levels.

New York City

Personal.—A Gold Medal was presented to Dr. Jacob M. Gershberg after twenty years of service to the International Association of Spanish Speaking Physicians at the recent banquet in his honor at the Waldorf Astoria. Among the guest speakers were ambassadors and consuls of foreign countries and the former president of Chile.

Pharmacology Research Laboratory.—The Alumni Association of the New York University College of Medicine has inaugurated a campaign to raise $250,000 to create a laboratory for research in pharmacology at the New York University-Bellevue Medical Center in the memory of the late Dr. George B. Wallace, founder of the department of pharmacology at the university, who died Jan. 15, 1948.

Standardized Antigens.—Arrangements have been made for the Department of Health to furnish standardized Venereal Disease Research Laboratory cardiolipin-lecithin antigen, Mazzini and Kolmer antigens to the twenty serologic laboratories of the Department of Hospitals, Bellevue Hospital. Technicians from the laboratories of the Department of Hospitals will be trained in the use of these antigens in the laboratories of the department of health.

Dr. Clark Appointed Dean.—Dr. Duncan W. Clark, associate dean and assistant professor of medicine, has been appointed dean of the Long Island College of Medicine, Brooklyn, effective July 1, succeeding Dr. Jean A. Curran, who has served as dean since 1937 and as president and dean since 1942. Dr. Clark is a graduate of the College, 1936, was resident physician at Kings County Hospital and in 1940-1941 held a Commonwealth Fund Fellowship at the Yale University School of Medicine, New Haven. He has been secretary of the faculty and chairman of the curriculum and internship committees and has served as director of the student health department since 1941.

OHIO

Blankenhorn in the Far East.—Dr. Marion A. Blankenhorn, professor and head of the department of medicine, University of Cincinnati College of Medicine, is on a five week teaching assignment in the Far East for the Surgeon General of the Army. The purpose of the trip is to aid in promoting and improving medical care and instruction in army medical installations in the Far Eastern Command, an assignment in line with the new program of the Army Medical Corps, which sends outstanding members of faculties abroad for short terms of intensive instruction.

Dr. Harding Appointed President of College.—Dr. George T. Harding, clinical professor of psychiatry, Ohio State University College of Medicine, and medical director of the Harding Sanitarium, Columbus, Ohio, has been elected president of the College of Medical Evangelists, Loma Linda and Los Angeles, effective September 1. Dr. Walter E. Macpherson, for six years president of the College, will become vice president and chairman of the section on medicine. Dr. Harding, a graduate of the college of Medical Evangelists in 1928, is a consultant in neuropsychiatry at the Children's Hospital, Grant Hospital and Starling-Loving University Hospital in Columbus. He is a member of the board of trustees of the Franklin County Tuberculosis Hospital in Columbus, an examiner on the American Board of Psychiatry, chairman of the Mental Hygiene Committee of the Ohio State Medical Association, a past president of the Columbus Academy of Medicine and former councillor of the Ohio State Medical Association.

OREGON

Graduate Course Schedule.—The University of Oregon Medical School, Portland, has revised its graduate course schedule to the following: September 27 to October 1, Diagnosis and Treatment of Diseases of Malignant Growth; October 18-22, General Surgery; October 25-29, Cardiology; November 1-5, Radiology; November 15-19, Gynecology; November 29 to December 2, Diseases of the Chest.

Eastern District Society Meeting.—The annual meeting of the Eastern Oregon District Medical Society will be held at Baker, June 25-26. Subjects to be discussed include: common eruptions of the hands, advances in endocrinology, roentgen examination of the upper part of the gastrointestinal tract, common anorectal complaints and infant and child feeding. At the banquet at 7 p.m., Dr. William W. Baum, Salem, will speak on " The Outlook for American Medicine."

TEXAS

Rheumatism Association.—The Texas Rheumatism Association was recently founded for the purpose of stimulating interest among physicians in problems dealing with chronic arthritis, rheumatic diseases and other allied conditions manifested by symptoms referable to the musculo-skeletal system. Dr. Howard C. Coggeshall, Dallas, was elected president and Dr. Paul J. Thomas, Dallas, Secretary.

Personals.—Charles M. Pomerat, Ph.D., director of the Tissue Culture Laboratory, University of Texas Medical Branch, Galveston, spent a week during May, at the invitation of the Mexican Government, in developing tissue culture methods in the biology and medical institutes of Mexico City.—Dr. Eric Ogden, professor of physiology, University of Texas Medical Branch, will be a guest speaker in August at the University College Hospital, London, England. Dr. Ogden will also attend the Glasgow meeting of the Physiology Society.

TENNESSEE

Grant for Research. — The U. S. Public Health Service has made available a grant of $6,000 to the University of Tennessee College of Medicine, Memphis, for a study of the relation between the motility of the pyloric sphincter and the process of gastric evacuation. This investigation is under the control of John P. Quigley, Ph. D. An additional grant of about $8,000 has been awarded for the support of studies by Richard R. Overman, Ph. D., on the water and ionic imbalances which occur in malaria and related states. About $7,000 has been allocated to Drs. Theron S. Hill and Richard R. Overman, Ph. D., for studies on the physiologic-psychiatric alterations which occur in premenstrual tension states.

WEST VIRGINIA

Organize Health Councils.—Countywide health councils have been established at Fairmont, Clay, Martinsburg and Charleston, under the sponsorship of the state department of health. In addition, a community health council is functioning at Ansted under the name, "Ansted Health Club." Another countrywide council was put in operation in Mc-country on April 1. Each council except the one located at Clay provides voluntary service to local health departments and carries on studies of health problems. The Clay council functions in matters of school health only. Five community school health councils have been established in Boone County under the direction of the public health educator attached to the county health department at Madison. Eight community-school Negro health councils have been organized in McDowell County and five in Mercer County. During the past two years, twenty-two school health councils have been organized under the supervision of the state department of education. The state health department plans to continue efforts to organize health councils on a countywide or community basis and to encourage the organization of school health councils.

WISCONSIN

State Society Purchases Home.—The State Medical Society of Wisconsin has purchased a two and one-half story brick building on Gorham Street in Madison as its new home. Space will be available for offices of the Wisconsin Veterans Medical Service agency and Wisconsin Physicians Service, as well as a meeting room for the council and society committees.

Dr. Cary's Library. — Marquette University School of Medicine, Milwaukee, has acquired the library of the late Dr. Eben J. Carey, as a gift from Mrs. Carey. The collection is made up of some volumes now out of print and books in the fields of neuroanatomy, anatomy and histology, biophysics of radiation and the relation of medicine to other sciences. Special bookplates will identify books from this collection, which will be absorbed in the regular library.

Surgical Meeting.—The Wisconsin Surgical Society held its annual meeting in Marshfield May 15 with operative clinics and papers on peritoneal lavage for uremia, surgery on diabetic patients, preparation for thyroid patients for surgery, roentgen ray in carcinoma of the breast and carcinoma of the colon and its management. The dinner speakers were Dr. Erwin R. Schmidt, Madison, " The Changing Horizon in Surgery" and Dr. Richard L. Varco, Minneapolis, "Surgical Treatment of Congenital Anomalies of the Heart and Great Vessels." Officers elected were Dr. Carl W. Eberbach, Milwaukee, president-elect, and Dr. Warner S. Bump, Rhinelander, secretary-treasurer.

GENERAL

Diplomates' National Board Meeting.—The Associated Diplomates of the National Board of Medical Examiners will hold their annual meeting at luncheon, June 24, at the Palmer House, Chicago.

Obstetric-Gynecologic Societies Meeting.— The next meeting of the board of governors of the National Federation of Obstetric-Gynecologic Societies will be held in Chicago at the Palmer House June 25 at noon.

Society Election.—The American Broncho-Esophagological Association, at their annual meeting in Atlantic City, N.J., April 7-8, elected Dr Paul H. Hollinger, Chicago, president, and Dr Edwin N. Broyles, Baltimore, secretary.

Tufts Alumni Meeting.—The Tufts Medical Alumni Association will hold a dinner meeting in Chicago, June 23, at the Windermere East Hotel, 56th Street and Hyde Park Boulevard. Dr. Harry A. Olin, Chicago, is local chairman, while Dr. John F. Conlin, Boston, is the chairman.

First Annual Meeting of General Practitioners.—The first annual meeting of the congress of delegates of the American Academy of General Practice will be held in the Sheraton Hotel, Chicago, on June 21. Dr. Paul A. Davis, Akron, Ohio, president, will preside.

Rocky Mountain Medical Conference.—August 2-4, 1949 has been selected for the next meeting of the Rocky Mountain Medical Conference to be held in Butte, Mont. The conference, purely scientific, includes the states of Colorado, Montana, New Mexico, Utah and Wyoming and meets biennially in the odd numbered years, rotating its meeting place among the five participating states.

International Congress.—The first International Congress of Physiology and Pathology of Animal Reproduction and of Artificial Insemination will be held June 21-30 in Milan, Italy. Seventeen lectures will be read and more than two hundred papers have been sent to the secretary general for discussion. All subscriptions are accepted by the secretary general of the congress in Via Bronzetti 17, Milan, Italy.

End of the Rosenwald Fund.—The Julius Rosenwald Fund, founded October 30, 1917, will close its work June 30, having fulfilled the instructions of Rosenwald to spend the principal as well as the interest by that date. It has sought, among other things, to equalize health facilities, aiding health services for Negroes, providing clinics for persons of moderate means and promoting health insurance.

Graduate Course in Thoracic Diseases.—The American Trudeau Society has arranged its second graduate course in thoracic diseases to be sponsored by the University of Colorado School of Medicine, Denver, July 19-31. The course is open to forty physicians from Arizona, Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, South Dakota, Utah and Wyoming. The course will be under the direction of Drs. James J. Waring and H. Dumont Clark, Denver.

Alumni Dinner.—The Association of the Alumni, College of Physicians and Surgeons, Columbia University, is sponsoring a dinner in the Normandie Lounge of the Hotel Stevens, Chicago, June 23 at 7 p.m. Professor Thomas H. Davies of the University of Chicago and the Institute of Nuclear Physics will speak on "The Use of Isotopes in Biological Research." Checks for tickets should be made out to Dr. Donald G. Anderson, Treasurer, c/o the American Medical Association, 535 N. Dearborn St., Chicago 10.

Dr. Longcope Receives Medal.—The George M. Kober Medal of the Association of American Physicians was awarded to Dr. Warfield T. Longcope, Lee, Mass., formerly professor of medicine at John Hopkins University School of Medicine, Baltimore, for his contribution to medicine and medical education. The award was made at the society's annual meeting in Atlantic City, N.J., in May. Dr. Francis G. Blake, New Haven, Conn., was elected president; Dr. Walter Bauer, Boston, treasurer, and Dr. Henry M. Thomas Jr., Baltimore, secretary.

Reports on Psychiatry Advances.—The Group for Advancement of Psychiatry has prepared reports on shock therapy, the psychiatric social worker in in the psychiatric hospital, medical education, commitment procedures and public psychiatric hospitals. One copy of any report is available to any professional person on request, and additional copies may be secured from the Chairman of the Group for Advancement of Psychiatry, 3617 West 6th Street, Topeka, Kan., at 10 cents a copy, plus postage.

Medical Military Reunions.—Officers stationed at O'Reilly General Hospital during the war will hold a reunion at the Palmer House, Chicago, on June 25. Details will be available at the registration desk. The officers stationed at the Ashford General Hospital will have a reunion at the Knickerbocker Hotel, Chicago, on June 22. A reunion dinner for the medical and dental officers of the Fourth Infantry Division (Ivy Leaf Division) and their guests will be held in private dining room 14 of the Palmer House at 7:30 p.m., June 25.

Pediatric Seminar.—The Southern Pediatric Seminar, a graduate summer course in methods of diagnosis, prevention and treatment of diseases of children, will be held at Saluda, N.C., July 5-17, with Dr. Samuel F. Ravenel, Greensboro, N.C., dean. The course is designed to fit the needs of the general practitioner. Lecturers represent some of the outstanding pediatrists in the South who volunteer their services. There will be clinics, conferences, round table discussions and lectures on allergy, bronchitis, child behavior, tuberculosis, infant feeding, rheumatic fever, convulsion, diarrhea, obstetrics and poliomyelitis.

American Radium Society.—The semicentennial of the discovery of radium will be observed by the American Radium Society at the annual meeting June 20-22, in the Hotel Stevens, Chicago. Foreign guests who will participate in the program include: Francois Baclesse, Paris; Juliette Baude, Paris, Elis Berven, Stockholm; Sir Stanford Cade, B. W. Windeyer, and Constance Wood, London; Robert McWhirter, Edinburgh, and Paul Lamarque, Montpellier, France. The annual Janeway Lecture will be delivered by Sir Stanford Cade at 4:30 p.m., Monday, on "The Achievement of Radium in the Fight Against Cancer." The banquet will be at 7 p.m. Edith H. Quimby, Sc.D., New York, will speak on "Discovery of Radium."

Marriages

LIPHUS O. MURPHY Jr., Laurel, Miss., to Miss Margaret Massa of Hazelhurst March 19.

WALTER LEE BOURLAND, Memphis, Tenn., to Miss Martha Tom Wright of Paris, Tenn., March 26.

LILLARD F. BEASLEY to Miss Jane Wyatt, both of Franklin, Ky., February 22.

JOSEPH I. GARCIA Jr., Memphis, Tenn., to Miss Mary Jane Guinn of Ducktown March 16.

PHILIP C. HENNESSEE, Portland, Ind., to Miss Donna Lee of Bedford in Indianapolis February 7.

Deaths

Edward Arthur Balloch ⊕ Washington, D. C.; born in Somersworth, N. H., Jan. 2, 1857; Howard University College of Medicine, Washington, 1879; dean emeritus at his alma mater, where he served as professor of principles and practice of surgery and clinical surgery; past president of the Medical Society of the District of Columbia; fellow and founder member of the American College of Surgeons; during World War I active as medical consultant on local draft boards; for many years affiliated with the Freedmen's Hospital; in 1929 received the degree of doctor of science and was presented a testimonial bronze tablet by Howard University; received the Howard University Annual Award for distinguished postgraduate achievement; died March 2, aged 91, of cerebral thrombosis.

Reuben Adolphus MacBrayer ⊕ Southern Pines, N.C.; born in Asheville, N.C., Nov. 26, 1892 University of Pennsylvania School of Medicine, Philadelphia, 1916; member of the Medical Society of New Jersey; on active duty as a medical officer in the U. S. Army in Mexico prior to World War I; served during World Wars I and II; formerly medical director, Ciba Pharmaceutical Products, Inc., at Summit, N.J., where during the same period he was consultant in endocrinology and associate in pathology for the Overlook Hospital; at one time on the staff of the North Carolina Sanatorium for the Treatment of Tuberculosis in Sanatorium; member of the Association of Military Surgeons of the United States; died February 21, aged 55, of coronary thrombosis.

Charles Harold Avent, Memphis, Tenn.; born in Kerens, Texas, June 10, 1908; University of Tennessee College of Medicine, Memphis, 1932; member of the American Medical Association and the Southeastern Surgical Congress; fellow of the American College of Surgeons; on the faculty of his alma mater; in June 1942 entered the medical corps, Army of the United States, as a captain; service terminated with rank of lieutenant colonel in November 1945; chief surgeon for an evacuation hospital; awarded the Bronze Star for meritorious service in Belgium; affiliated with the John Gaston Hospital and the Baptist Hospital, where he died February 15, aged 39, of hypertension.

Samuel Hoberman ⊕ Malden, Mass.; born Nov. 13, 1882; George Washington University School of Medicine, Washington, D. C., 1907; for many years physician in charge of the tuberculosis clinic of the board of health; member of the American Trudeau Society; past president of the Malden Tuberculosis and Health Association; affiliated with the Malden Hospital; served as chief of the pulmonary clinic at Beth Israel Hospital, Boston; died February 18, aged 65, of carcinoma of the colon, hypertension and cerebral hemorrhage.

Samuel Humes Watson ⊕ Tucson, Ariz.; Rush Medical College, Chicago, 1899; past president of the Arizona State Medical Association and the Benton County (Ia.) Medical Society; fellow of the American College of Physicians; member of the American College of Chest Physicians and of the American Association for the Study of Allergy; specialist certified by the American Board of Internal Medicine; affiliated with the Barfield Sanatorium and St. Mary's Hospital and Sanatorium; died February 5, aged 70, of cerebral hemorrhage.

Charles Percy Aling, Minneapolis; Rush Medical College, Chicago, 1900; member of the American Medical Association; member of the staff of St. Barnabas Hospital; died January 16, aged 69, of coronary disease.

Robert Bruce Bainter, Zanesville, Ohio; Baltimore Medical College, 1893; member of the American Medical Association: affiliated with Bethesda Hospital and Good Samaritan Hospital, where he died January 20, aged 81, of fracture of the hip.

Edward Williams Barton, San Gabriel, Calif.; Medical College of Ohio, Cincinnati, 1901; served during World War I; died February 5, aged 73, of cerebral hemorrhage.

Jewell Lee Bass, Carbondale, Ill.; University of Illinois College of Medicine, Chicago, 1931; died in the Holden Hospital January 11, aged 45, of hepatic cirrhosis.

Tilman Carlisle Britt, Mount Airy, N.C.; Jefferson Medical College of Philadelphia, 1921; member of the American Medical Association; served as health officer of Surry County and of Wilmington, N.C.; died in Sanford, Fla., February 20, aged 53, of hypertension and coronary thrombosis.

James Forest Buchanan, Dallas, Texas; Baylor University College of Medicine, Dallas, 1927; member of the American Medical Association; died January 24, aged 51.

William Henry Burns ⊕ Alliance, Ohio; Cleveland Homeopathic Medical College, 1902; for many years served as health commissioner of Alliance and on the board of health; died January 20, aged 69.

Charles P. Carlisle, Dallas Texas; Gate City Medical College, Dallas, 1906; member of the American Medical Association; died January 19, aged 73.

Charles Cox Chapin, Lafayette, Ind.; College of Physicians and Surgeons, Los Angeles, 1918; member of the American Medical Association; served during World War I; medical director of Wabash Valley Sanitarium; formerly superintendent of Logansport State Hospital in Logansport; died in Home Hospital February 26, aged 55, of organic heart disease.

Alfred B. Claytor, Bedford, Va.; University of Pennsylvania Department of Medicine, Philadelphia, 1894; member of the American Medical Association; died January 9, aged 79, of pneumonia.

George McClave Cultra, Amarillo, Texas; University of Nebraska College of Medicine, Omaha, 1919; specialist certified by the American Board of Pediatrics; fellow of the American College of Physicians; on the staffs of the Northwest Texas and St. Anthony's hospitals, died January 4, aged 53, of cerebral hemorrhage.

Tommaso D'Alessio, South Plainfield, N.J.; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1916; decorated for his gallantry during World War I; died February 27, aged 65, of coronary thrombosis and diabetes mellitus.

William A. Davis, Austin, Texas; Missouri Medical College, St. Louis, 1899; for many years state registrar of vital statistics; fellow of the American Public Health Association; formerly health officer of Fort Worth; for two terms president of the American Association of State Registration Executives; died January 27, aged 74, of myocarditis and gastric hemorrhage.

Eva A. Corell Dittmann, Cashmere, Wash.; Cleveland University of Medicine and Surgery, 1896; died January 17, aged 93, of coronary thrombosis.

Leland Pride Durant, Paso Robles, Calif.; Tulane University of Louisiana School of Medicine, New Orleans, 1942; interned at Charity Hospital in New Orleans; served a residency at Monterey County Hospital in Salinas; an officer in the medical corps of the U. S. Naval Reserve during World War II; died January 8, aged 32, of uremia and bilateral ureteral kink.

Edgar McDonell Griffith, Harrisonville, Mo.; University Medical College of Kansas City, 1911; member of the American Medical Association; director of the Cass County Health Unit; an officer serving overseas during World War I; served as county coroner and county physician; on the staffs of Menorah Hospital in Kansas City and Memorial Hospital; died February 21, aged 63, of coronary occlusion

Oscar Louis Harries, Buffalo; University of Buffalo School of Medicine, 1888; died February 22, aged 89, of fracture of neck of the femur received in fall.

James G. Harrison, McAllen, Texas, Louisville (Ky.) Medical College, 1896; died January 18, aged 74.

Joseph Jefferson Henderson, San Francisco; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1891; member of the American Medical Association; died January 9, aged 77, of carcinoma of the stomach.

William Elijah Hicks, Timmonsville, S. C.; Medical College of the State of South Carolina, Charleston, 1909; member of the American Medical Association; died in Florence February 8, aged 66

Julius Albin Hupert, Washington, D. C.; University of Lemberg, Austria, 1902; died February 8, aged 71, of heart disease.

John Wesley Hutchens ⊕ Portsmouth, Ohio; Miami Medical College, Cincinnati, 1905; served as health officer; on the physicians' and surgeons' staff of the Norfolk & Western, Chesapeake & Ohio and Baltimore & Ohio railways; died January 13, aged 64.

Ben Terrell Johnson, Bluffton, Ga.; Atlanta School of Medicine, 1912, died January 19, aged 59.

Willis H. Kimball, San Diego, Calif.; Medical School of Maine, Portland, 1891; died February 15, aged 81.

Joseph Davis Lehman, Philadelphia; Jefferson Medical College of Philadelphia, 1902; also a graduate in pharmacy; member of the American Medical Association; at one time on the faculty of his alma mater; for many years physician for the board of health and chief of staff at Memorial Hospital; died February 22, aged 74.

John Lawrence Lund, Perth Amboy, N.J.; Long Island College Hospital, Brooklyn, 1891; on the local board of health for one term; formerly city physician; during World War I served as a captain in the medical corps of the U. S. Army; formerly on the staff of Perth Amboy General Hospital; died February 21, aged 80, of heart disease.

James Donald McKay ⊕ Marion, Ind.; Trinity Medical College, Toronto, Canada, 1895; served on the staffs of the Marion General and Veterans Administration hospitals; died February 18, aged 78, of coronary occlusion.

John F. McMath, Americus, Ga.; University of Georgia Medical Department, Augusta, 1889; died January 28, aged 92.

Grace Milliken, Dedham, Mass.; Tufts College Medical School, Boston, 1926; member of the American Medical Association; died in the New England Hospital for Women and Children in Boston, January 19, aged 74, of probable pulmonary embolism and a fractured hip received in an accident.

Robert Edgar Mitchell, Richmond, Va.; Medical College of Virginia, Richmond, 1913; also a graduate in pharmacy; member of the American Medical Association and of the Richmond Academy of Medicine; affiliated with the Medical College of Virginia Hospital, Johnston-Willis Hospital and the Stuart Circle Hospital; died February 21, aged 63, of cerebral hemorrhage.

James Hunt O'Connor, San Francisco; Cooper Medical College, San Francisco, 1895; member of the American Medical Association; fellow of the American College of Surgeons; formerly chief surgeon for the Market Street Railway; served on the staff of St. Francis Hospital; for many years on the staff of the Southern Pacific Hospital, where he died February 2, aged 78.

Thomas Hunt O'Connor ⊕ San Francisco; Cooper Medical College, San Francisco, 1908; also a graduate in pharmacy; in 1933 elected to the board of trustees of St. Francis Hospital, where during the past eight years he served as first vice president and chief of the department of surgery; died February 4, aged 67, of cerebral hemorrhage.

Gustaf Adolf Oredson, Hoquiam, Wash.; College of Medical Evangelists, Loma Linda and Los Angeles, 1938; member of the American Medical Association and of the California Medical Association; certified by the National Board of Medical Examiners; served overseas during World War II; affiliated with St. Joseph Hospital in Aberdeen; died February 15, aged 37, of heart disease.

Henry Leon Picard, Philadelphia; Jefferson Medical College of Philadelphia, 1896; served on the staffs of the Lankenau, St. Mary's and Jefferson hospitals; died January 15, aged 72.

Mardell Yates Pope ⊕ Monticello, Ark.; Jefferson Medical College of Philadelphia, 1893; an Affiliate Fellow of the American Medical Association; served during World War I; died January 22, aged 78, of myocarditis.

Anthony Domenico Semisa, New York; New York Homeopathic Medical College and Flower Hospital, New York, 1913; member of the American Medical Association; died January 8, aged 63.

Furman Thomas Simpson, Westminster, S. C.; University of Maryland School of Medicine, Baltimore, 1909; member of the American Medical Association; veteran of World War I; served as chairman of the local board of health and as county health officer; died January 29, aged 65, of heart disease.

Arthur Bushnell Smith, San Diego, Calif.; Cleveland University of Medicine and Surgery, 1897; specialist certified by the American Board of Radiology, Inc.; member of the Radiological Society of North America, Inc., and of the American College of Radiology; died January 11, aged 74, of uremia, nephritis and chronic prostatitis.

Anthony Edward Sojewicz, Syracuse, N.Y.; Syracuse University College of Medicine, 1934; member of the American Medical Association; served during World War II; on the staff of Onondaga General Hospital, where he died February 18, aged 39, of cerebral hemorrhage.

Harol Steele, St. Louis; Universidad Nacional Facultad de Medicina, Mexico, D. F., 1941; member of the American Medical Association; on the staff of Missouri Pacific Hospital, where he died February 5, aged 44, of heart disease.

Eunice Rand Stoops, Oakland, Calif.; American Medical Missionary College, Battle Creek and Chicago, 1902; died January 26, aged 71.

Benjamin Lansing Ten Eyck ⊕ Major, U. S. Army, retired, New Rochelle, N.Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1885; served in the U. S. Army from 1889 to 1903, when he was retired for disability; veteran of the Spanish-American War; died February 4, aged 85, of arteriosclerosis.

Edith Rebecca Hornberger Wolf, Lakeland, Fla.; Cleveland University of Medicine and Surgery, 1896; formerly a medical missionary in Africa; died February 10, aged 76.

Foreign Letters

PARIS

(From Our Regular Correspondent)

April 15, 1948.

Tetraethylammonium as Regulator of Vegetative Nervous System

Professors C. Lian and G. Bergamo have obtained fairly lasting results in the treatment of arterial hypertension, angina pectoris, Raynaud's Disease and arteritis obliterans by tetraethylammonium; contrary to other reports, uncomfortable reactions to this drug were infrequent. Five cubic centimeter ampules of tetraethylammonium in a 10 per cent solution were used intramuscularly and often associated with a substance prolonging the *drug's action: "subtosan"·(polyvinyl pyrrolindina)* in 25 per cent solution. The authors found that tetraethylammonium is a great regulator of the vegetative nervous system: the injection of this drug in an animal anesthetized by morphine initiates an acceleration of the cardiac frequency up to the normal; to the contrary, in an animal anesthetized with barbiturates an injection slows the heartbeat to normal. The effect remains the same when the modifications of the cardiac rhythm have been obtained by the preganglionic excitation of the cardiac nerves. The authors have employed this drug in human beings also and reported their results to the "Societe Medicale des Hopitaux de Paris," April 9, 1948. In a young woman with tachycardia due to sympathetic hypertonia the intravenous injection of one ampule of the drug for a few days progressively diminished the pulse rate from 140 to 80 a minute, in another case from 130 to 110. Inversely, in 2 asthmatic and brachycardiac patients repeated injections of the drug induced a progressive acceleration of the pulse: in the first case from 58 to 75, in the second from 60 to 72. In several vagotonic patients they observed that the slowing down of the heart, initiated by compressing the eyeball does not occur after a previous injection of one ampule of this drug; inversely, in sympatheticotonic patients the same process caused, after injection of one ampule, a normal slowing down of the cardiac frequency. In 1 patient in whom intensive ephedrine therapy had no effect on frequent pauses of the heart due to sinoauricular block, the intravenous injection of one ampule of tetraethylammonium caused the block to disappear and the rhythm to increase from 38 to 65 pulsaions; however, forty-five minutes after the injection the intermittent block and bradycardia reappeared. The authors are of the opinion that this drug would have a favorable effect against acute edema of the lung.

A Study of Delinquent Children

Dr. M. Heuyer has *made a study of the influence* of the war and the period of occupation on the psychology of children. The intellectual level of children has not been impaired by war, and mental debility has not increased. The author made these conclusions following a census of abnormal children, begun in 1937 and pursued during the war. The study was based on the Gilles nonverbal test and comprised the mental analysis of 100,000 children of twenty-five different regions. The educational level, which had fallen during the war, has again risen to the prewar level. The number of vagabond children entrusted to private institutions has risen from 492 in 1938 to 2,505 in 1944. Children's gangs have been rare in France. The number of underage offenders appearing before the courts for the whole of France increased from 11,788 in 1937 to 32,100 in 1943 and diminished to 11,800 in 1945. This increase in juvenile deliquency in the proportion of 1 to 3 or 4, till 1943 was found in all countries of Europe which had to endure war and occupation, even in Switzerland.

Miscellaneous

The French Society of Phlebology has just been officially organized. It brings together specialists and those who are interested in the study and treatment of diseases of the veins.

From June 24 to 27 the second International Scientific Conference will take place at Aix-les-Bains under the honorary presidency of Professor Besancon and the presidency of Professor Leriche. The principal subject on the agenda is degenerative chronic rheumatism. For full information apply to Dr. Francon, 55 Rue des Mathurins, Paris, 9.

ITALY

(From Our Regular Correspondent)

April 7, 1948.

Surgery of the Spleen

A recent meeting of the Surgical and Medical Association of Naples was devoted to surgery of the spleen. Signorelli reported the case of a girl aged 12 years with abdominal syndrome characterized by attacks of painful splenomegaly, rise of temperature, transitory ascites, small liver and positive reaction to the Takata-Ara test. Splenectomy revealed congestive splenomegaly with numerous hemorrhagic intrasplenic foci and annular cirrhosis of the liver. Eight months after the operation the patient was in good health. Signorelli presented also the history of a girl aged 16 with brucellosis of five months' duration; she had undulatory high fever, enlarged spleen and liver, rapid anemization and hemorrhagic manifestations. After two months of ineffective vaccinotherapy, splenectomy was performed and was followed by rapid improvement of the hepatic condition and normal temperature. Microscopic examination of the spleen and biopsy of the liver revealed a congestive hemorrhagic splenitis and an acute hepatitis. The speaker attributed the main responsibility for the clinical aspect to the hepatitis with a vicious circle of chainlike damage (liver-spleen-bone marrow-liver) which may be interrupted only by the removal of the spleen.

Torraca discussed several cases of splenectomy performed for various indications: congestive splenomegaly, Banti's disease, cirrhosis of liver, hemorrhagic purpura, hemolytic icterus, brucellar splenomegaly. The operative course was favorable in all instances.

Late results were satisfactory for months, and in some cases for nine years after the operative intervention. One patient with cirrhosis of liver and splenomegaly died after two years because of recurrence. In 1 patient with Werlhof's disease (thrombopenic purpura) who is still in good health after nine years, the splenectomy had only a transitory effect and the patient had to take vitamin K for a long time.

Perrotti summarized modern concepts of the treatment of splenopathy; he insisted that splenectomy is superior to ligation of the splenic artery.

Insurance Against Occupational Accidents

An agreement was reached between the National Institute of Insurance Against Occupational Accidents and the National Municipal Medical Association, with the following decisions:

1. The assistance given persons who had an accident while working includes first aid and treatment up to the time of recovery, prescriptions and occasional reports required by the institute.

2. The institute will pay as much as 500 lire for the complete cure of each person who had an accident while working or who had an occupational disease.

3. In cases of fractures, the physicians as a rule will limit their care to the application of a temporary apparatus of immobilization and to sending the victim as soon as possible to a nearby hospital or to the Surgical Ambulatorium of the of the institute. A fee of 400 lire will be paid to the physician for the application of any apparatus of immobilization.

BRAZIL

(From Our Regular Correspondent)

Buenos Aires, March 1, 1948

Surgical Drainage of the Cardiac Lung

To find a surgical treatment for some diseases of the heart which until now have been in the exclusive domain of internal medicine, Drs. Pedro Cossio and I. Perianes of Bueno Aires have performed for almost a year different surgical procedures in animals. These involved more or less risk, and some of them were more physiologic than others. All have been performed to drain the cardiac lung and thereby to alleviate a group of symptoms which burden exceedingly patients with this condition. After having acquired enough experience with animals they carried out the tricuspid valvotomy in men. The technic consists in dissecting the vena jugalaris interna and introducing the valvulotome, which the same authors have described. Afterward the vein is sewed again.

Three patients survived in good condition and continue to live in relatively good health. All three manifested an increase of the vital capacity and of the time of apnea, with diminution of the dyspnea. A fourth patient (a woman) died, probably by paroxysmal auricular fibrillation, from which she had suffered before the valvotomy. She had vomiting and complete aphonia, followed quickly by acute edema of the lung (the patient had mitral stenosis).

It is not possible, of course, to judge the therapeutic value of the operation, although the results are apparently encouraging. The cases are few, and it is known that in cardiology the most unexpected evolutions in the most desperate conditions may occur. Furthermore, the same authors are experimenting on a new way to discharge the cardiac lung by means of an anastomosis of the left vena or arteria pulmonalis inferior with the vena splenica. In this way the blood can avoid the obstacle which would signify a mitral stenosis or an insufficiency of the left ventricle; it returns to the right heart after having passed through a considerable distance. Thus there is no great probability that the right ventricle will get rapidly overcharged as it would, for example, when an anastomosis (vena pulmonalis -azygos- cava superior) had been made.

The Ample Sympathectomy in Primary Hypertension

To the same society Professors Tibrucio Padilla and Pedro Cossio and Drs. Julio A. Berreta and and G.H. Alvarez reported their experiences with splanchnicectomy and postganglionic sympathectomy, ample and bilateral (lumbar or dorsolumbar), which they performed in 34 cases of primary hypertension at the medical clinic of the University of Buenos Aires. The age of the patients varied between 29 and 50 years, only 1 of them was 52, three others were 54 years of age. All except 2 who are not mentioned in the statistics had relatively good renal sufficiency. All showed a good lability of tension; 18 had a cardiopathic condition of different degree. The mortality rate was 9.09 per cent. Although the figure of arterial tension improved immediately after the operation in 50 per cent of patients the percentage decreased rapidly with the course of time, so that after six to twenty-four months only some 17 per cent of the persons operated on were still benefited. The hypertensive condition improved immediately after the operation in nearly all cases, but with time ventricular surcharge and enlargement of the heart reappeared, until the earlier grade was reached or even passed. On the other hand, in some cases the improvement of cardiac insufficiency persisted during a longer period. It is not possible to make an accurate prognosis of the efficiency of the operation, even though the patient's age, the results of the sedative and cold tests and the degree of hypertension are known.

This procedure must be considered as a radical therapeutic step which may be taken in exceptional circumstances, perhaps in rapidly progressing hypertension after all other therapeutic means have failed and in hypertensive cardiopathy (third degree) when the treatment only partly controls the cardiac insufficiency, provided that the patients are under 50 years of age and have good renal sufficiency.

Pan-American Congress of Gastroenterology

The Pan-American Congress of Gastroenterology will be held from March 11 to 17, 1948 in Buenos Aires, under the chairmanship of Professor Carlos Bonorino Udaondo. The main subject will be "Chronic Cholecystitis Without Stones." The different aspects of the theme will be considered by Drs. B.B. Crohn, New York; H.L. Bockus, Philadelphia; C. Bonorino Udaondo, Buenos Aires; Ignacio Chaves, Mexico; Robert Elman, St. Louis; A.C. Broders, Rochester, Minn; Domingo Mosto, Buenos Aires; Pedro A. Barcia, Montevideo, Uruguay; Pedro A Maissa, Buenos Aires; B. Varela Fuentes, Montevideo; A. López Garcia, Buenos Aires; Julio Carrere, Montevideo; Pablo Mirizzi, Cordoba, Argentina; Marcelo Royer, Buenos Aires; A. da Silva Mello, Rio de Janeiro; Alfonso Uribe-Uribe, Bogota, Colombia; Hernán Alessandri, Santiago, Chile; Norberto M. Stapler, Buenos Aires; Félix Amesti, Santiago, Chile; Fortunato Quesada, Lima, Peru; Abraham Ayala González, Mexico, and Adrian J. Bengolea, Buenos Aires. For information address the secretary, Tucuman 1978, Buenos Aires.

Congress of Dermatology

With Professor Pedro L. Baliña, president of the Argentine Association of Dermatology and Syphilology, in the chair, the meeting held in Buenos Aires received great assistance from specialists and several foreign guests, among others Professor José Gay Prieto, president of the Spanish Academy of Dermatology, Madrid, Dr. Arthur Grace (Long Island, N.Y.), Dr. Max Wolf (New York) and well known specialists of Brazil, Chile, Uruguay and Spain. The deliberations were held in three sections: (1) dermatology--the treatment of lupus and other cutaneous tuberculids with the method of Charpy (France), the Besnier-Boeck-Schaumann disease and lupus erythematosus; (2) syphilis-intensive treatment of recent syphilis, and (3) lepra--prophylaxis and treatment with modern methods; their practical application.

From the many subjects treated we may refer here only to the fact that it was the unanimous opinion that there is no tuberculosis causation of lupus erythematosus, which has to be considered as a syndrome in which focal infection, particularly by streptococci, plays an important role and further exterior factors, especially sunlight, participate.

BERLIN

(From Our Regular Correspondent)

Wiesbaden, April 25, 1948.

Venereal Disease Control Legislation in Germany

Next to the fight against tuberculosis the combating of venereal disease is the most important public health problem in Germany today. This has been recognized by the Allied Control Council, the quadripartite government of Germany, the existence of which is presently the subject of worldwide political discussions.

In a recent draft law, published as an appendix to Control Council Directive 52, the Control Council, "taking into consideration the increasing incidence of venereal disease among the German population and in the interest of health conditions in Germany," adopted a uniform plan and procedure in all the zones of occupation of Germany for the fight against venereal disease among the German population.

Control Council Directive 52

On May 7, 1947, the Allied Control Council, "disturbed by the increased incidence of cases of venereal disease and convinced that one of the causes of this increase lies in the ineffectiveness of the German law at present in force," issued Directive 52, which was designed to combat venereal disease more effectively. This directive imposed on the zone commanders in the four zones of occupation in Germany the duty to examine existing legislation for the control of venereal disease among the German population, whereby particular attention is to be directed to the following points: *(a)* "To determine whether the laws and decrees dealing with the instruction of the people on the control of venereal disease are adequate; *(b)* to achieve uniformity in the detection of cases of venereal disease, the compulsory declaration of such cases to the appropriate authorities and the establishment of isolation wards for treatment of such infections."

To this directive was attached the text of a draft law "Relative to Combating Venereal Disease" and two draft directives, one "On the Enforcement of the Law Relative to Combating Venereal Disease," the other "Establishing Venereologic Diagnostic Centers and Isolation Wards." These constitute the policy of the Allies in this matter and were designed to give guidance to the zone commanders in order to make possible uniform venereal disease control measures throughout the four zones of occupation. The zone commanders were directed to encourage legislation in their zones as nearly in conformity with the draft law and the two draft directives as possible. The following is a short summary of the main provisions contained in this draft legislation on venereal disease, as compared with the German legislation of 1927:

The term venereal disease, as applied in Directive 52, now includes also Nicolas Favre disease (lymphogranuloma venereum and lymphopathia venerea). The draft law provides for the abrogation of the German law of 1927 and its implementations and amendments. Under this draft law it is the responsibility of any person knowingly infected with venereal disease or, by reason of circumstances, suspecting himself to be so infected, *(a)* to have himself examined and treated by a licensed physician until fully cured and *(b)* to refrain from sexual intercourse until permission to resume such intercourse is received from the treating physician.

Any pregnant woman who might transmit syphilis congenitally either because she herself is infected with syphilis or because of known syphilis in the procreator has to take the same measures as referred to under sections *a* and *b*. Sexual intercourse by a person with venereal disease in an infectious stage is under the provisions of the draft law punishable without the former requirement of a request for instituting criminal proceedings. The most important changes brought about by the new draft law are in the field of finding the sources and contacts of the infection. While the old law did not encourage the reporting of one person by another, since it provided that no attention be paid to anonymous reports, the new draft law states that all physicians, on diagnosing a new case of venereal disease, will make every effort to obtain from the patient the maximum useful information for identifying and tracing the alleged source and also sexual contacts that may have been infected by the patient. Such information will be related to the public health authorities without delay. The authorities will then immediately take all necessary steps to induce the alleged source, and all sexual contacts who may have been infected, to submit to a medical examination and, if necessary, to compulsory treatment. In the new draft law the immediate hospitalization is to be recommended by the treating physician in cases (1) where the patient is leading a promiscuous sexual life, whether as a prostitute or not; (2) where the patient is subject of a complaint of infection brought by a member of the occupation forces, or (3) has infected, or is suspect of having infected, a member of the occupation forces.

Subsequent Legislation

On the basis of Control Council Directive 52 and the attached draft law and directives, a law relative to combating venereal disease was passed by the Berlin Kommandatura on Oct. 31, 1947, which is applicable within the city proper. Similarly, on Dec. 11 a law was passed in the Soviet zone of occupation following the pattern of Control Council Directive 52. The differences between these laws and the Control Council draft legislation are only slight and need not be mentioned here. The British Military Government, in its zone, has submitted Control Council Directive 52 and its accompanying draft legislation to the legislative assemblies in the British zone, where the passing of such legislation uniformly and zonewide is under way now. In the American zone of occupation there have been similar debates in the *Laenderrat*. It is to be expected that uniform legislation based on Control Council Directive 52 and its implementation will soon be enacted in both zones.

Miscellaneous

The German Society for Internal Medicine will meet on May 19, 20 and 21, 1948, in Karlsruhe, American zone. The main topics will be the vegetative nervous system, virus diseases and blood pigment. Professor C.M. Haselmann, director of the dematologic clinic of Erlangen University, has been invited by the Cuban government and by the International Leprosy Association to participate as official delegate in the International Congress for Leprosy at Habana. On Dec. 10, 1947, Dr. Gerhard Domagk received in Stockholm the Nobel prize for the discovery of the therapeutic effects of the sulfonamide drugs. Under the Nazi régime he had been forbidden to accept that award.

Medical Motion Pictures

FILM REVIEWS

Anomalies of the Bile Ducts--Blood Vessels and Strictures of the Common Duct, Part I and II. 16 mm., color, silent, 1,200 feet (one reel), showing time forty minutes. Prepared in 1947 by Warren H. Cole, M.D., Chicago. Produced by Mervin LaRue for the American College of Surgeons under a grant from the Johnson & Johnson Research Foundation. Procurable on loan from Ethicon Suture Laboratories, Division of Johnson & Johnson, New Brunswick, N.J.

The anomalies of the bile ducts and blood vessels and strictures of the common duct are treated in two parts in this motion picture. Diagrammatic illustrations and animation are used throughout to identify the normal gallbladder and surrounding adjacent organs. The excision of part of the common duct, thus pulling it into the position normally occupied by the cystic duct, is illustrated by drawings. These drawings show the danger of injury to the common duct during cholecystectomy when an unusually large Hartmann's pouch densely adherent to the common duct is encountered. Injury of the duct if hemorrhage is not controlled correctly when ligating the vessels is demonstrated; an accessory bile duct which is severed and not ligated may result in a stricture. Other causes of stricture of the common duct, not related to trauma, are described as diffuse sclerosing pancreatitis, abscess about the duct, ulceration of the wall by stones and suppurative cholangitis. Observation of certain precautions given in the film will be of great value in reducing the incidence of stricture of the common duct. Conditions such as injury or obstruction to the common duct causing a biliary fistula or jaundice developing postoperatively are described clearly.

The various types of strictures such as local stricture, stricture of the distal end, stricture of the proximal end and absence of the entire duct are clearly presented in drawings. However, in most cases the distal end of the common duct is present but is difficult to find because of its position under the duodenum and in the head of the pancreas. Although the original trauma may be limited to a small portion of the duct, the entire duct can be involved by a process known as obliterative cholangitis. In the repair of local strictures metal tubes are used for support at the anastomotic line for at least three months following repair; however, most surgeons insert a T tube with one arm extending beyond the suture line. Procedure for anastomosis of the common duct to the duodenum and the use of the Roux y-arm of jejunum with the use of metal tubes for a support or the use of the rubber catheter are clearly demonstrated. The incidence of congenital atresias are mentioned, namely: hepatic duct patent, atresia of extrahepatic ducts (7 per cent), atresia of hepatic duct, cystic duct and common duct normal (11 per cent), hepatic and proximal portion of common duct patent (14 per cent) and atresia of all extrahepatic ducts (70 per cent).

The film is brought to a conclusion by summarizing the following facts which were emphasized throughout: During operation avoid trauma, carelessness and haste; be on the alert for anomalies, and have thorough knowledge of normal anatomy in the region of the gallbladder. Well prepared, still drawings constitute the majority of illustrations in this picture. However, various camera methods were used to give the illusion of motion. If sound slide film projectors were more readily available in medical schools and hospitals, the production of a film strip instead of a motion picture might have been considered. This is an excellent educational technical film, since it points out the anatomic relationships of the biliary passages. It can be recommended for showing to groups of general surgeons, interns and possibly senior medical students.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARD OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, May 29, page 487.

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: Parts I & II Various centers, Sept. 13-15. Final date for filing application is Aug. 13. Exec. Sec., Mr. Everett S. Elwood, 225 South 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: Written. Various Centers, July 16. Oral, Philadelphia, Oct. 10, Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York 22.

American Board of Dermatology & Syphilology: Oral. Groups A & B. Ann Arbor, Oct. 21-23. Final date for filing application is Aug. 2, 1949. Written. Ann Arbor. Sept. 9, Sec., Dr. G. M. Lewis. 66 E. 66th St., New York 21.

American Board of Neurological Surgery: Oral. Chicago. June 1949. Final date for filing application is Jan. 1949. Sec., Dr. W. J. German. 310 Cedar Street, New Haven, Conn.

American Board of Obstetrics and Gynecology: Part I. Various Centers, Feb. 4, 1949. Final date for filing Application is Nov. 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 1.

American Board of Ophthalmology: Oral. Chicago, Oct. 6. Written. Various centers, Jan. 1949. Final date for filing application is July 1, 1949. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopedic Surgery: Part II. Chicago. January 1949. Final date for filing application is August 15. Sec., Dr. Francis M. McKeever, 1136 W. 6th St. Los Angles 14.

American Board of Otolaryngology: Oral. Chicago, June 15-19. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

American Board of Pathology: Chicago, Oct. 8-9. Final date for filing application is Oct. 1. Sec., Dr. Robert A. Moore, 507 Euclid Ave., St. Louis.

American Board of Pediatrics: Chicago, June 25-27. Seattle, Sept 10 12. Atlantic City, Nov. 17-19. Written. July 30. Sec., Dr. Lee F. Hill, 718 Royal Union Bldg., Des Moines, Iowa.

American Board of Plastic Surgery: Examinations are given in June and November of each year in the hometown of applicants. Sec.-Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis.

American Board of Psychiatry and Neurology: Oral. All Groups, San Francisco, October. Final date for filing application is July 15. Sec., Dr. F. J. Braceland, 102-110 Second Sve., S. W., Rochester, Minn.

American Board of Radiology: Nov. Final date for filing application is Sept. 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S. W. Rochester, Minn.

American Board of Surgery: Written. Part I. Oct. Final date for filing application is July 1. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: Chicago, Feb. 12-16, 1949. Final date for filing application is Sept. 1. Sec., Dr. Harry Culver. Route #13, Sunnyside Rd., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Bull. of U.S. Army Med. Dept., Washington, D.C.

8:81-164 (Feb.) 1948

Anopheles Gambiae Problem in Brazil and West Africa, 1941-1944. E. Farrell.—p. 110.
Coccidioidal Infection. F. W. McLaughlin.—p. 124.
Studies on Schistosomiasis: II. Summary of Further Studies on Methods of Recovering Eggs of S. Japonicum from Stools. G. W. Hunter 3d, E. P. Hodges, W. G. Jahnes and others.—p. 128.
*Tuberculous Pleurisy with Effusion. I. G. Karron and R. K. Purves.—p. 131.
Clinical Aspects of Protein Metabolism. Co. Tui.—p. 136.
Clinical Importance of Rh Factor. P. Levine.—p. 139.
Diagnosis and Treatment of Essential Hypertension. J. Redish.—p. 146.
Surgery of Hypertension. B. S. Ray.—p. 151.

Tuberculous Pleurisy with Effusion.—Karron and Purves present observations on 215 cases of tuberculous pleurisy with effusion. Cases of pleurisy secondary to pneumothorax are not included. This is a select group, since it consists only of male American soldiers hospitalized at one of the Army tuberculosis centers. The great majority of these soldiers were transferred from other Army hospitals. The past histories revealed that 12 per cent of the patients had close contact with an open case of tuberculosis in civil life. In addition, 11 per cent were liberated prisoners of war, most of whom were exposed to cases of tuberculosis, giving a combined contact history in 23 per cent. Commenting on the pathogenesis, the authors say that it has been suggested that pleural effusions result from the rupture of a caseous tuberculous hilar node into the pleural cavity, either directly or through a small zone of intervening lung that has been consolidated by periadenitis. In this group, however, hilar adenopathy was present in less than 1 per cent of the cases. Parenchymal disease was present in 42 per cent of this group of 215 patients. Dissemination occurred in 16 per cent during the six to twelve month period of observation.

Hawaii Medical Journal, Honolulu

7:193-270 (Jan.-Feb.) 1948

Law Relating to Medico-Legal Autopsies in Territory of Hawaii. A. V. Majoska.—p. 205.
Familial Erythroblastic Anemia (Cooley's Anemia): Report of Possible Cases in 2 Filipino Brothers. E. F. Slaten.—p. 210.
Incidence of Oxyuriasis Among Group of School Children in Honolulu. J. E. Alicata and Anna Y. Kartman.—p. 214.
Why Lumbar Puncture? R. B. Cloward.—p. 216.
Effect of Penicillin Sodium on Coliform Bacilli and Proteus in Vitro. S. S. Yonamine and F. W. Hartmann.—p. 219.

Journal of Allergy, St. Louis

19:1-70 (Jan.) 1948

Studies on Correlation Between Symptoms of Ragweed Hay Fever and Titer of Thermostable Antibody. H. L. Alexander, Mary C. Johnson and S. C. Bukantz.—p. 1.
Measurement of Vital Capacity in Asthmatic Subjects Receiving Histamine and Acetyl-Beta-Methyl Choline. Clinical Study. J. J. Curry and F. C. Lowell.—p. 9.
Tissue Changes in Allergy. B. S. Kline.—p. 19.
Chemical Studies on Skin-Reactive Fraction from Short Ragweed Pollen. K. C. Robbins, A. Samuels and M. M. Mosko.—p. 35.
Statistical Studies in Allergy: II. Factorial Analysis. T. G. Andrews.—p. 43.
Aerosol Therapy. G. A. Koelsche.—p. 47.
Spirometric Evaluation of "Ethyl-Nor-Epinephrine" in Bronchial Asthma. L. Levy and J. H. Seabury.—p. 58.
Local Cutaneous Allergy (Arthus Phenomenon) from Epinephrine. A. Rowe Jr. and A. H. Rowe.—p. 62.
Use of Procaine Hydrochloride Intravenously in Treatment of Reactions to Penicillin: Report of 4 Cases. A. E. Cohen and J. Kaufman.—p. 68.

Journal of Investigative Dermatology, Baltimore

10:1-38 (Jan.) 1948

Three Cases of Exudative Chronic Discoid and Lichenoid Dermatosis (Sulzberger and Garbe) (In Shanghai). E. Kocsard.—p. 1.
Correlation of Age and Respiration of Skin From Human Female. Elsie M. Walter and J. C. Amersbach.—p. 11.
Observations on Kveim Reaction in Sarcoidosis of American Negro. C. T. Nelson.—p. 15.
Studies on Eczematous Sensitization: II. Effect of Engendering of Eczematous Sensitization on Threshold of Reaction to Primary Irritants. J. B. Haeberlin Jr., R. M. Oliver and A. Rostenberg.—p. 27.
Distribution and Factors Influencing Amount of Sebum on Skin of Forehead. E. O. Butcher and J. P. Parnell.—p. 31.

Journal of Urology, Baltimore

59:1-112 (Jan.) 1948

Notes on Recurrence in Renal Stone. R. M. LeComte.—p. 1.
*Hypertension in Unilateral Renal Disease. H. S. Sabin.—p. 8.
Method of Uretero-Intestinal Anastomosis: Preliminary Report. R. H. Flocks.—p. 21.
Ureteroduodenal Anastomosis. J. G. Fortner and J. H. Kiefer.—p. 31.
Thrush Infection of Urinary Bladder: Case Report H. R. Sauer and W. R. T. Metzner.—p. 38.
Papillary Carcinoma of Bladder Diverticulum Treated by Transurethral Resection. B. B. Madison.—p. 42.
Diverticulum of Male Urethra: Report of Case. H. J. Repman Jr. and J. W. Warren Jr.—p. 44.
Ectopic Uretheral Orifice Within Urethral Diverticulum: Report of Case. C. L. Willmarth.—p. 47.
Heterotopic Bone Formation Following Suprapubic Prostatectomy. B. S. Abeshouse.—p. 50.
End Results of Injection Treatment of Hydrocele. H. Bruskewitz and G. H. Ewell. -p. 67.
Influence of Vasectomy on Incidence of Epididymitis Following Transurethral Prostatectomy. J. M. Lynn and R. M. Nesbit.—p. 72.
*Cancer of Breast in Male, Secondary to Estrogenic Administration: Report of Case. W. Abramson and H. Warshawsky.—p. 76.
Treatment of E. Coli Urinary Infections with Sulfathalidine (Phthalylsulfathiazole). H. S. Everett, G. A. Vosberg and J. M. Davis.—p. 83.
Treatment of Bacillus Coli and Bacillus Proteus Infections of Urinary Tract with New Sulfonamide (NU-445). L. Narins.—p. 92.
*Streptomycin in Genitourinary Infections. C. G. Bandler, P. R. Roen and V. J. Mulaire.—p. 96.
Modification of Brown-Buerger Cystoscope. C. A. Fort.—p. 111.

Hypertension in Unilateral Renal Disease.—Sabin shows that there is experimental evidence which indicates that interference with the circulation of one or both kidneys may result in the liberation of a pressor substance into the blood stream with resulting hypertension. This pressor substance has not been demonstrated in the peripheral circulation of human subjects or experimental animals with hypertension. Sabin analyzed 100 cases from the literature in which nephrectomy was performed in unilateral renal disease associated with hypertension and has added one of his own. In 51 of these, the blood pressure returned to normal, although 21 had been followed less than a year since the time of operation. Twenty three showed a reduction in blood pressure but not to normal levels, while in 26 no improvement was obtained. The commonest pathologic condition in these cases was chronic pyelonephritis, the kidneys frequently showing atrophy. The cases of hypertension which may be cured by nephrectomy are comparatively rare. Great care should be exercised in evaluating the functional capacity of both kidneys before operation is contemplated. Compensatory hypertrophy of the healthy kidney is a good indication of a successful outcome. Generally speaking, the younger the patient and the shorter the duration of the hypertension, the better the results.

Cancer of Male Breast After Treatment with Estrogen.—Abramson and Warshawsky report the case of a man, aged 51, in whom diagnosis of carcinoma of the prostate with osseous metastases was made. The case was considered terminal and measures for the relief of pain were recommended. He was placed on 1 mg. of diethylstilbestrol daily with much relief of pain and improvement in general well-being. The patient refused to consent to orchiectomy and was discharged March 2, 1944 with the advice that he continue to take diethylstilbestrol, 1 mg. daily, indefinitely. Several months later swelling was noticeable in the mammary region. Subsequently the enlargement of the breast increased. At necropsy the breasts and axillary tissues showed neoplastic growths. Microscopic studies revealed that histologically the tumor of the prostate as well as that of the breast was primary. The metastases in both axillary nodes came from the tumor of the breast. The authors think that there is strong evidence of a causal relationship between the hormonal therapy and the development of cancer of the breast. The total amount of diethylstilbestrol used was 1,097 mg. This treatment had extended over a period of four hundred and eighty-nine days. Awareness of the likelihood of the development of cancer of the breast in the male receiving estrogenic therapy for carcinoma of the prostate is important. The changes in the breast incident to such therapy should be carefully observed.

Streptomycin in Genitourinary Infections.—Bandler and his associates analyze results obtained in 15 patients with urologic infections in whom streptomycin was used. There have been cases in which streptomycin proved lifesaving after other measures failed. The urine may become sterilized, provided the offending organisms are susceptible to streptomycin. Failure to correct obstructive factors is responsible for the recurrence of infection and may be a factor in the development of bacterial resistance to streptomycin. In the presence of a calculus or of a nephrostomy tube, renal infection may be eliminated temporarily by streptomycin, but unless the obstruction is removed there will soon be a recurrence of the same organisms. In vitro tests of susceptibility of an organism to streptomycin cannot always be relied on to determine its effect in the patient. The immunologic response and resistance of the patient may change the clinical response to the antibiotic. There has been clinical improvement despite the fact that bacteria were still present in urine cultures, indicating that streptomycin may have been effective in altering the pathogenicity of the organisms. In nonspecific prostatitis it is possible to free the prostatic secretions of pathogenic bacteria for brief periods; however, streptomycin does not change the course of this disease entity. The streptomycin presently available has neurotoxic properties. In this series of 15 cases there were 2 cases of toxic labyrinthitis and 1 case of involvement of the left recurrent laryngeal nerve. In a fourth case there was mild and transitory involvement of the facial nerve. In view of the potential toxicity of streptomycin, its prophylactic use in urologic surgery should not be indiscriminate. Since this report was written, the authors have treated many more patients with streptomycin, confirming the impressions and conclusions already stated.

New York State Journal of Medicine, New York

48:113-224 (Jan. 15) 1948

Fatal Hemorrhage Associated with Third Stage of Labor: Study of 60 Maternal Deaths, Brooklyn, 1937-1947. M. Glass and A. H. Rosenthal.--p. 159.
Failures in Glaucoma Operations: Histologic Study. B. F. Payne.--p. 166.
Conservation of Hearing Program in New York State. G. D. Hoople.--p. 169.
Otosclerosis: Its Pathology and Treatment. F. Altmann and D. Woodman.--p. 173.
Treatment of Intrinsic Cancer of Larynx. J. D. Kernan.--p. 178.
Study of Surgical Mastoiditis Occurring in Children at Buffalo Children's Hospital During Years 1945 and 1946. H. E. Bozer.--p. 183.
Anteroseptal Infarction. M. A. Donovan.--p. 187.
Preliminary Report on New and Simplified Penicillin Vehicle. M. J. Goodfriend, I. C. Fischer and L. J. Caruso.--p. 192.
Fixed Extension of Knee Due to Capsular Contraction. L. C. Wagner.--p. 194.
Tear of Lateral Ligament of Ankle. L. A. Goldstein.--p. 199.

Plastic and Reconstructive Surgery, Baltimore

3:1-108 (Jan.) 1948. Partial Index

Treatment of Hemangiomas of Head and Neck. F.A. Figi.--p. 1.
Anaphylaxis and Homotransplantation of Skin. D.E. Barker.--p. 34.
Amputation Versus Transposition of Gland and Nipple in Mammaplasty. J.W. Maliniac.--p. 37.
Myositis Ossificans of Masseter Muscle: Case Report. J.G. Kostrubala and R.J. Talbot.--p. 52.
Spontaneous Gangrene of Scrotum. Fournier's Gangrene. L.T. Barclay.--p. 56.
Reconstruction of Left Maxilla. H.H. Campbell.--p. 66.
Use of Vitallium Plates to Maintain Function Following Resection of Mandible. B. S. Freeman.--p. 73.
Use of Composite Graft in Reconstructive Surgery of Lower Eyelid. C.J. Armstrong and F.A. Garcia.--p. 79.

Virginia Medical Monthly, Richmond

75:1-54 (Jan.) 1948

Digestive Symptoms Associated with Disorders Located Outside of Digestive Tract. W. H. Barker. -p. 4.
Virginia's New Coroner System. C. M. Irvin. -p. 14.
Management of Gastro-Intestinal Bleeding. G. W. Horsley. -p. 17.
Hopeful Aspects of Cardiovascular Disease. R. E. Glendy. -p. 19.
Rhabdomyosarcoma: Case Report with Response to Roentgen Therapy. S. J. Eisenberg. -p. 27.
Use of Anti-Convulsive Drugs. R. F. Gayle Jr. and T. F. Coates. -p. 29.
Brucellosis (Undulant Fever). G. R. Tureman Jr. -p.32.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Tuberculosis, London

41:75-100 (Oct.) 1947

Scapulectomy and Thoracoplasty. A. J. Coello. - p.75.
Chronic Miliary Tuberculosis. W. N. Rogers. - p. 79.
Case of Large Thymic Cyst Successfully Removed From Anterior Mediastinum. J. Smart. - p. 84.
Clinical Aspects of Sarcoidosis. C. Cameron. -p. 88.
*Observations on Sarcoidosis. C. Hoyle. -p. 92.

Observations on Sarcoidosis.--Hoyle says that among 135 patients whose clinical features gave some reasons for considering sarcoidosis, the diagnosis could be regarded as endorsed in 16 only by histologic support. Another 14, though probable examples, were unconfirmed, and in 32 others alternative diagnoses seemed just as likely. Of the remaining 73 patients, 53 had chronic miliary tuberculosis. The lungs are among the organs most commonly affected by sarcoidosis. The characteristic form of the disease is a combination of lymph node enlargement, cutaneous lesions and uveoparotitis. In this triad the intrathoracic lymphatic system takes a prominent share, for enlargement of the bronchopulmonary and mediastinal lymph nodes is an early and persistent feature. The miliary type of sarcoidosis shows nothing distinctive of its origin. The shadows conform in size, distribution, density and numbers to the picture of miliary tuberculosis. Both miliary and focal varieties may eventually resemble diffuse fibrotic tuberculosis when the lesions have contracted and scarred. Reviewing observations on tuberculin sensitivity in sarcoidosis, the author shows that two reflections are suggested: that patients with sarcoidosis and a negative Mantoux may not previously have had a positive reaction, and that the disease could still be tuberculous in spite of a persistently negative reaction, belonging then to the deceptive class where tuberculin sensitivity does not develop or is readily suppressed. The author stresses that however the disease is regarded, whether from its clinical appearance and course, its radiology, its morbid histology or its intractability to transmission--the similarity to known examples of tuberculosis is a constantly recurring feature. Although this similarity is no proof of identity, it is so close that separation has become meaningless.

Monatsschrift für Psychiatrie und Neurologie, Basel

114:129-264 (Sept.-Oct.) 1947. Partial Index

Heredity and Pathohistology of Spastic Spinal Paralysis. I. Farago.—p. 161.
Acute Ependymitis of Lateral Ventricles with Intracranial Increase in Pressure and Hyperkinetic Psychosis. G. Pamboukis and G. Anastasopoulos.—p. 193.
*Diphtheric Polyneuritis in Adults. Z. Böszörmenyi.—p. 209.

Diphtheric Polyneuritis in Adults.—Böszörmenyi reviews observations on 14 adults, varying in age between 20 and 50 years, in whom there developed paralysis of the cranial nerves from one to five weeks after onset of pharyngeal diphtheria. Accommodation and innervation of the soft palate were most frequently involved. From six to twelve weeks after the onset of diphtheria paresthesias appeared in the extremities, and these were followed by paralytic symptoms in the extremities and sometimes of the trunk. The reflexes were often reduced or abolished. The albumin content of the cerebrospinal fluid was frequently increased. The therapeutic measures included physical therapy, autohemotherapy, administration of vitamin B_1, strychnine and liver extracts. In some cases drainage of the cerebrospinal fluid was employed. Most patients recovered within six months. In a married couple the disease took a grave and prolonged course; in one of them a picture resembling Landry's polyradiculitis developed; in the other symptoms of myelitis. In these cases the possibility of superinfection by a virus is considered.

Riforma Medica, Naples

61:461-478 (Oct. 15) 1947. Partial Index

*Pathogenesis and Therapy of Acute Anterior Poliomyelitis. M. Acqua. -p. 461.

Pathogenesis and Therapy of Acute Anterior Poliomyelitis.—Acqua states that there is a relation between poliomyelitis and both gastrointestinal infection and cutaneous allergy. The author carried on research in three different groups of patients. Patients in the first and second groups were seen by the author early in the period of paralysis and during the regression of paralysis. Those in the first group had gastrointestinal disorders in the prodromal period which were absent in those in the second group. Vaccines were prepared with killed cultures of intestinal bacteria and intradermally administered to patients in the first group. Negative results were obtained from vaccines of coli bacillus, whereas vaccines from enterococcus, pyocyaneus and proteus either alone or in association caused an allergic cutaneous reaction and regression of paralysis, which effects were moderate for single vaccines and severe for associated vaccines. Patients in the second group had autovaccines which were prepared from the patients' own nasopharyngeal secretions. Autovaccines failed. However, when they were given in association with vaccines of intestinal bacteria the cutaneous reaction was as strong as that which had been observed in patients in the first group and the regression of paralysis equally well defined. The third group of patients was large. It included patients with paralytic sequels of from ten to fifteen years' duration. Reaction of the skin was definite in these patients, and the return and progressive improvement of muscular function were surprising.

Wiener klinische Wochenschrift, Vienna

59:805-820 (Dec. 12) 1947. Partial Index

*Employment of Women During Pregnancy. H. Heidler. -p. 805.
Suggestions for Combat of Epidemic Poliomyelitis. F. Kress. -p. 808.

Employment of Women During Pregnancy.--Heidler believes that housework is generally not too much exertion for pregnant women. Shopwork at home does not seem to exert such unfavorable influences as does work in factories, particularly when it involves work on machines. Statistics indicate that prolonged standing is especially harmful. Varicose veins are much more frequent in those whose occupation involves prolonged standing. It is probable that certain toxic substances used in some industries may increase the incidence of premature births or stillbirths. Among such toxic substances the author mentions lead, which is used in toy and ceramic factories and in production of artificial flowers, and mercury, which is used in mirror factories and in the hat and fur industry. Obstetric and puerperal complications are greatly increased among women who work in the textile industry, particularly in those who work while standing. Industrial work also involves disadvantages for lactating women.

Book Notices

Modern Treatment of Peptic Ulcer. By Asher Winkelstein. Cloth. Price, $4. Pp. 205. Oxford University Press, 114 Fifth Ave., New York 11, 1948.

This handy volume presents in detail the extensive experience of the author and his associates at the Mount Sinai Hospital in New York in the treatment of peptic ulcer. The most useful section and one which all internists will welcome describes fully the author's method of treating peptic ulcers by means of a continuous drip of nutritive and alkalinizing solutions into the stomach. The theroetic background for this treatment is ably presented. Present recognition of the fact that most patients with ulcer secrete large volumes of highly acid gastric juice in the empty stomach at night is partly due to the author's pioneer researches in this field and the logic of neutralizing this corrosive fluid by the continuous intragastric drip is appealing. It represents an important extension to the basic concept of Sippy's method. The chapters dealing with the pathologic physiology of the stomach in ulcer and on the pathogenesis of the disease are less complete and valuable. Probably not many will agree with the author's contention that his associates should be largely credited with the present interest in vagotomy. Partial division of the vagus supply to the stomach such as is practiced and described from this clinic and in the older literature has elsewhere been found not to be of much value. The book, however, does not purport to be a surgical treatise and this should not detract from its manifest usefulness as a guide in medical therapy.

Jonathan Hutchinson: Life and Letters. By Herbert Hutchinson. With a foreword by J. Johnston Abraham. Cloth. Price, 12s. 6d. Pp. 257, with illustrations. William Heinemann, Medical Books, Ltd., 99 Great Russell St., London W.C.1 1946.

When Jonathan Hutchinson died his medical career was evaluated in obituaries by such distinguished persons as Sir George Newman and Sir Thomas Barlow. Now on the basis of great numbers of letters written to his wife and friends Herbert Hutchinson has prepared a biography which tells the story of this famous Quaker who was stirred by Darwinism and who contributed vastly to medicine and science. His was a great mind a d his biography takes its place among the distinguished works of its type in the field of science.

A History of Medicine. By Arturo Castiglioni, M.D., Research Associate in the History of Medicine at Yale University, New Haven, Conn. Translated from the Italian and edited by E. B. Krumbhaar, M.D., Ph.D. Second edition. Cloth. Price, $12.50. Pp. 1253, with 504 illustrations. Alfred A. Knopf, 501 Madison Ave., New York 22, 1947.

The second edition of this important philosophic consideration of the history of medicine is much enlarged over the previous edition. Its approach to the problems of medicine is quite different from Garrison's book. Professor Castiglioni views medicine with a broad outlook in relationship to its position in society. He considers trends and the reasons for their development. In this history various discoveries are considered in proportion to the whole field of medicine and civilization. The history by Castiglioni can be read and is far more than a reference work. It deserves a place in the library of every physician interested in the cultural aspects of medicine.

De Primaire Atypische Pneumonieen Van Onbekende Oorsprong. Door Dr. Th. van Erp. (Primary Atypical Pneumonias of Unknown Origin.) Paper. Price, 6 guilders. Pp. 124, with illustrations. E. J. Brill, Ltd., Leiden, Holland, 1947.

This is an excellent monograph composed essentially of a review of the literature on the pneumonias of supposed virus origin, illustrated by appropriate case reports selected from the records of 130 patients studied in a hospital. The patients were chiefly workers in the petroleum industry in Curacao, Netherlands West Indies, and the occurrence of the disease in several hundred persons there after 1943 appeared to be part of the worldwide pandemic of the infection at that time. The subject is dealt with under the usual headings of clinical aspects, complications, roentgenology, clinical pathology, etiology, diagnosis, prognosis and therapy. No controversial points are raised, since the author comfirms almost all the previously reported observations. The bibliography contains one hundred and eighty-two references, and credit is carefully given where credit is due.

Betrachtungen zur Individualpsychologie. Von Dr. Siegfried Novotny. Paper. Price, $1.20. Pp. 63. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; Wilhelm Maudrich, Spitalgasse 1B, Wien IX/2, 1947.

Dr. Novotny, a senior psychiatrist in the large municipal mental hospital of Vienna, "Am Steinhof," wrote this brief outline of Adlerian theory and therapy in a philosophic vein. For instance, he refers to Kant to explain Adler's concept of conscious versus unconscious. The book centers around the importance of social interest and its limitation through inferiority feelings, which are always self deceptions. The author goes to great length in explaining the mechanism, causes and effects of inferiority feelings. He describes the the three life tasks of work, marriage and social relationships. It is interesting to note that he substitutes Adler's term " style of life" with " Primaeres Leitbild" (primary guiding concept). He gives a good description of the differences between psychoanalysis and individual psychology. The first tries to explain psychic life as a system of conflicting energies, while the latter tries hard to avoid mechanistic concepts; in contrast to psychoanalysis, which is causalistically oriented in describing the effects of various antagonistic instinctual desires, individual psychology sees each person as a unit who can be understood only by his goals.

The importance of courage and the pathologic significance of discouragement are extensively discussed. Neurosis is described as an illusion to conceal anticipated or actual defeat. It serves (1) as a retreat, and for the creation of distance from social living; (2) as illusory satisfaction of the desire for significance; (3) to influence the environment, and (4) to conceal these three tendencies from the patient himself. If the body responds to such tendencies, the ensuing psychosomatic symptoms serve these neurotic purposes. The goal of psychotherapy is to make the patient aware of his goals and of his errors in his self evaluation and to induce him to change his attitudes and concepts. The primary means to this end is encouragement. The author advises letting the patient talk freely in order to find out, first, what the patient really wants. The faulty concepts which have been unknown to the patient must be brought into consciousness, and the more adequate concepts must be so well established that they can sink again into unconsciousness. This means cure.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

REMOVAL OF WARTS

To the Editor:—Kindly send me literature or information on the use of liquid oxygen in the removal of moles and warts.

G. L. Harker, M.D., Nogales, Ark.

ANSWER.—An article by Irvine and Turnacliff (*Arch. Dermat. & Syph.* **19**:270 [Feb.] 1929) has a historical review of the subject, a report of results obtained in various types of lesions and a full discussion by a number of dermatologists. More recently, in June 1947, Kyle and Welsh of Cincinnati read a paper on the subject at the annual meeting of the American Medical Association in Atlantic City, N. J. This has not yet been published but will appear soon in the *Archives of Dermatology and Syphilology*. Both papers report satisfactory results from the use of liquid oxygen on superficial lesions such as warts and keratoses, and both stress the ease with which it is applied. Liquid oxygen, however, is available in relatively few communities.

ULCERATION OF MOUTH

To the Editor:—A white woman aged 35, married, a doctor's assistant, has had ulcers in her mouth off and on for two years. Ulcers vary from pinpoint to matchhead in size, are round with grayish white membrane and always start as a small herpes. Usually eight to ten are present at one time, principally on the inner surfaces of the lips, although a few appear on the buccal surface of the cheeks. They are extremely painful. During the past two years there was one remission of two months. Gold and silver dental work was performed two years preceding ulcerations in the mouth. She has occasional attacks of hay fever in spring, summer and autumn, but attacks are never severe. In 1941 she had a positive reaction to a skin test for undulant fever. At that time she was running an afternoon temperature of 102 to 103 F. Complete rest in bed for six weeks was prescribed and three ten-day courses of a sulfonamide drug with two-day free intervals were given. Injections were also given at that time, but she has no idea what they were. Undulant fever has not bothered her much since, except that she believes she occasionally runs a slight afternoon temperature. She had a mild attack of urticaria in 1934 and was told that this was caused by eggs and pork. Menses, which started at the age of 13, were seldom regular and occasionally absent for six months at a time; flow was scanty and of only two days' duration. In 1939 the fundus of the uterus and two tumors, or cysts, from one ovary were removed. She had regular scanty menstruation for two years following surgical intervention and has not menstruated since. She has received extensive vitamin therapy and penicillin. The Wassermann test is negative. Ulcers clear up in seven to ten days with or without treatment, only to recur in two or three weeks.

I first saw her in May 1947. The white blood cell count was 11,800, red blood cell count 4,370,000 and hemoglobin 86 per cent. Urinalysis was normal; the basal metabolic rate was plus 2 per cent; gastric analysis revealed free hydrochloric acid 31 cc. and total acidity 51 cc. Protein scratch tests elicited slight reaction to a few foods, but her diet was revised without beneficial effect. Administration of "pyribenzamine hydrochloride" (tripelannamine hydrochloride) 50 mg. gave no relief.

The patient states that ulcerations are usually preceded by a swollen axillary lymph node, sore breasts, a feeling of exhaustion and drowsiness. Suggestions for diagnosis and treatment are requested.

M.D., Missouri.

ANSWER.—A woman aged 35 has had herpes leading to canker sores on her lips and in her mouth for two years, since age 33. The lesions last for seven to ten days at a time and then leave her free for two or three weeks, only to recur again. Once she was free for as long as two months.

Meanwhile she has had mild hay fever and, more important, she has had for six years, since 29 years of age, attacks of fever with temperature up to 103 F. keeping her in bed for six weeks at a time, with sulfonamide drugs administered in courses. The history says nothing concerning the relation between the aphthous stomatitis (canker sores) and the fever or between the stomatitis and the drugs received, and study of the time relations might be helpful.

Undulant fever (brucellosis) has been suspected, especially because skin tests with the Brucella antigen were positive. The patient does not have persistent leukocytosis, although there is evidence of slight anemia. Other chronic infections must be considered. Malaria, rheumatic fever, pyogenic infections, cholecystitis or even endocarditis may cause such symptoms and may be overlooked quite easily.

Herpes and aphthous stomatitis can depend on a local virus infection, but if so they pass off promptly and would hardly recur for two years. Similar lesions can depend on an allergy to foods, but the cases are very rare. In this instance there is no evidence of sensitivity to food either by skin tests or by dietary changes.

Finally, herpes and aphthous stomatitis often occur as complications of acute and chronic infections, and it is possible that the basic lesion here is the infection. Brucellosis alone could cause this clinical picture. On the other hand, allergy to drugs occurs when least expected, and the sulfonamide compounds are particularly prone to produce reactions of this sort.

Treatment is difficult, and when allergy to drugs is suspected the problem becomes even more difficult. Antibiotic agents are not of much value against brucellosis. Penicillin and streptomycin have been tried without success. The sulfonamide drugs have helped in some cases when first used, but later the effect has worn off. General supportive measures are essential; if the diagnosis of brucellosis can be supported, one can consider more active forms of treatment such as vaccines and extracts made from the Brucella organism and its cultures. Unfortunately, treatment of this kind is new and no one knows very much about it. This particular patient will need much further study before an accurate diagnosis can be made and proper therapy applied.

"DICUMAROL" AND PROTHROMBIN

To the Editor:—After I had abnormal bleeding in patients treated with "dicumarol" who apparently had fairly good prothrombin levels (40 per cent of normal), I investigated the laboratory methods used and the method of calculation of percentage of prothrombin. I found two entirely different methods of calculation, neither of which is correlated with the other. The method most widely used is to divide the normal time in seconds by the abnormal. This figure is reported in percentage of normal. This method is described in several textbooks and is the method advocated by the manufacturers of thromboplastin. The arithmetic used in this method is in error and no correlation exists between this method and that advocated by Allen and associates, which is: dilute normal plasma to 10 per cent, 20 per cent, 30 per cent, etc., and compare this time with the unknown.

At the Good Samaritan Hospital in Cincinnati, we calculated percentage according to both technics with the startling results:

Percentage as Calculated by Allen's Method	Time in Seconds	Method in General Use (n/u × 100)
10%	60 to 70	25%
20%	30 to 45	50%
30%	20 to 22	75%
40%	17 to 20	80%

No correlation between the two sets of figures occurs. If Allen's method of prescribing "dicumarol" is used with the alternate method of reporting prothrombin percentage quite disastrous results may be expected. I found this to be true on interrogating the local physicians and members of hospital staffs. Laboratories almost universally were reporting in the percentage of normal (n/u x 100) and physicians just as universally were prescribing according to Allen's technic, with some unhappy results.

I have found almost every one, both in clinical practice and in the laboratory, unaware of this discrepancy until it was pointed out to them. With a drug as powerful as "dicumarol" there is no place for uncertainty or inaccuracy in the laboratory technic, the calculations or the method of reporting. It might be wise to discard percentage reports entirely and to report in seconds, with the normal also given in seconds. If percentage reports are to be retained, the method for determining percentage should be standardized.

D. C. Rivers, M.D., Cincinnati.

ANSWER.—A safe and accurate way to express prothrombin activity is as per cent of normal. This value can be calculated fairly accurately by the equation: $C = \frac{k}{\text{p.t.} - a}$ (c = concentration or prothrombin activity as per cent of normal; p.t. = prothrombin time; k and a are constants which have a value of 303 and 8.7 respectively, provided 12 seconds is obtained for normal plasma). To calculate prothrombin per cent by dividing the normal by the abnormal prothrombin time is entirely erroneous.

The present confusion will not be remedied until a standard procedure is adopted. The most reliable course would be to follow the directions as outlined by Quick (*Am. J. Clin. Path.* **15**:560 [Dec.] 1945). Various modifications, particularly the bedside method, the diluted plasma method and other procedures using thromboplastins of dubious activity had best be entirely discarded. Rabbit brain dehydrated with acetone furnishes the most satisfactory source of thromboplastin, because if properly prepared it has a high and consistent activity and deteriorates slowly. If a prothrombin time of more than 13 seconds is obtained on normal plasma, it is best that a prothrombin time be also run on 50 per cent and 20 per cent plasma (i. e. normal plasma diluted with one and four parts of isotonic sodium chloride solution, respectively) and reported with the unknown. For effective "dicumarol" action the prothrombin time should be reduced to the 20 per cent level, i. e., to the prothrombin time of 20 per cent plasma.

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AMERICAN MEDICINE AND THE SPIRIT OF ITS PROGRESS

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South Bend, Ind.

"It is apparent that the United States under its voluntary system of medical care has made greater progress in the application of medical and sanitary science than any other country. This progress is now reflected in low mortality and morbidity rates of infectious diseases and in increased life expectancy. There is every reason to believe that these trends will continue unabated under our present system of medical care.'

This paragraph is taken from the conclusions of the report from a study by the Brookings Institution made at the request of Senator H. Alexander Smith, Chairman of the Subcommittee on Labor and Public Welfare.

The conclusion from an objective and unbiased authority commands respect. Since medicine attained this high position in America, let us consider how we have maintained this superior service. I shall endeavor briefly to set forth my analysis of the factors that have made this progress possible. In order that our discussion may be more understandable, let us first define medicine in terms of research and use of discoveries and methods from many scientific fields and in terms of the service it renders to the individual patient.

Within human consciousness, man is the most complex product of nature. Medicine is based on the study of man and requires scientific knowledge of the processes on which life depends. The changes that occur in microscopic cells, cellular reproduction and embryologic development, growth, nutrition, metabolism and, finally, the processes of ageing comprise the universal sequence in the progress of living.

Illness may result from inherited deficiencies, failures of normal body functions or physiologic accidents. These, too, are necessary fields of study in acquiring medical knowledge of man. But man is associated with everything in nature, so that disease may arise from any contacts or deficiences in man's environment. The chemical and moisture content of air, sunshine and temperature may be favorable or unfavorable to health. The recognition of viruses, microbes and parasites that cause disease and necessary protection from them are also a part of medicine. The manner of conveyance of disease by contact with sufferers from the disease or animal carriers is of established importance.

In the treatment of disease, medicine must be familiar with normal physiologic function and methods of restoration from disturbance of such function to normal. As agents in treatment, medicine takes from botany various plant products, from chemistry the substances needed to supply deficiencies and to destroy bacteria. From the blood come protective factors and serums. From electrical energy, special currents are used for various purposes, and radioactive products are employed for the destruction of diseased tissues. Last, but perhaps foremost, is discussion of the tremendous area of the emotional life of man, varying from the normal psychology of life to the medical problems of the abnormal. Again medical science must explore a great area of human development and social experience. The normal emotional development from infancy to maturity, the interests, incentives and happiness of man and the problems of immaturity, maladjustment, frustration or the extremes of crime and psychosis are vital medical interests.

This somewhat lengthy inventory is an indication of the considerations necessary in an effort to appraise medicine, its dimensions and progress. High standards of medical education and careful selection of students are important to the progress of a professional service of such broad scientific basis.

MEDICAL EDUCATION

A long and arduous course of training is necessary to equip physicians to provide a high quality of medical service. The formal educational program of students of medicine, therefore, requires a minimum of seven years. Special training requires several additional years. But, more than this, progress in medicine is so rapid that the effective physician must continue to be a student and research

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Address of the President of the American Medical Association delivered before the Ninety-Seventh Annual Session at Chicago, June 22, 1948.

observer throughout his entire professional career. His value to his patients will depend on this scientific qualification, to which must be added the indescribable humanity, sympathetic interest, clear judgment and inspired responsibility which produce the best service to the sufferer. Therefore, medical students are carefully selected, and the course in preparation for medicine is longer than that required in most other professional fields.

As a result of this scientific preparation and organization of effort, medical science in the United States has attained remarkable results and medicine continues to progress in advance of social progress. Men live in the United States in good health to greater average age than ever before in the history of any nation. The general levels of health and added longevity accomplished by health education, medical research and development and the use of new methods in prevention and treatment of disease mark scientific advances in medicine unequalled in any comparable division of science.

The benefits of those advances have been effective in the reduction of the incidence of disease, shortening of the periods of illness and lengthening of life in all income groups. This superior comprehensive service, despite general economic inflation, has been delivered to the individual patient with a minimum increase in physicians' fees despite vast increases in cost of various commodities and labor. These increased costs of materials used by physicians and maintenance expense have reflected on the physician as well as the patient. Hospital costs to the patient have necessarily reflected the increased costs of food, supplies, labor and materials in the same proportion as they have reflected on the civilian public.

INADVISABILITY OF GOVERNMENTAL PLANS

The fact that scientific advances in medicine have progressed much more rapidly and to a point far in advance of social and economic thinking is evident in proposed governmental plans for changing our system of medical care. These plans are seldom concerned with better or more effective mechanisms to advance the quality of medical care. They provide little or nothing new to advance the levels of health or happiness. Finally, a consideration of the operation of plans in effect in other nations reveals no evidence to recommend them for use in the United States, where already higher levels of health care are available to more people than anywhere else in the world.

The economic levels, or the standards of living, in the United States are much higher than in other countries. The areas in this country in which present medical standards are economically impossible are minimal in number as compared with the total nation. Education in health and some improvement of medical facilities will require only local effort with possibly some assistance from national resources, but not governmental interference, with the inevitable deterioration of the medical service of the whole nation. If a local area is economically able to correct conditions, this effort should be encouraged. If outside aid is necessary, it may come from federal tax funds derived from general taxes applied to all income groups. Federal aid for medical care should not be taken from funds derived from taxes improperly called insurance and applied only to lower income groups of employees. One wonders at the shortsightedness of labor leaders who advocate legislation that depreciates the civic status of those they represent.

Better social thinking could be directed to better education in healthful living; encouragement to cooperation between labor and employers in industrial health efforts; better housing; education in nutrition; encouragement in wholesome recreation; incentive or assistance through local autonomies in the building of health facilities such as hospitals; stimulation of interest and pride in health activities, and encouragement to voluntary insurance plans against costs of illness.

Especially constructive and much needed now is planning of happier years for people in the older age groups. Existing economic practice excludes men from employment after age 65 and places in idleness and unhappiness many whose experience and capacity would still be useful. With average ages now approximately 67 or 68 years, many men and women now 65 years old will still be living in 1970. Medical progress is constantly extending the life expectancy of human beings. According to recent statistical studies, in 1900 there were about 3,000,000 persons in the United States aged 65 or over. In 1940, there were 9,000,000 aged 65 or over. Estimates suggest that there will be 14,000,000 aged 65 or over by 1960 and 21,500,000 in that age group by the year 2,000.

The three highest ranking causes of death, heart disease, cancer and hardening of the arteries with cerebral hemorrhage, are diseases of the older ages. Nephritis, diabetes and general arteriosclerosis are also in this older age group. More research is now being directed to these degenerative diseases of the older age group. Much may be done in prevention of these diseases by educational programs, good living habits and recreation.

Medicine is constantly exploring new fields pertaining to body function, health and disease. As a result, scientific theory continues to advance. Many physicians in all parts of the country apply themselves to these scientific leads, and discoveries of great importance to the extension of healthy living may be developed at any time. Scientific research is the accomplishment of unusual mental capacity and training. Experience has shown that it does not flourish in a political atmosphere. If social thinking is to follow a proper course of evaluation of methods, it should not deal in the abstract as if groups were the ultimate units of interest and that service is, therefore, best directed by government.

The individual is important in modern civilization. Each human being is a more complex structure than any social system to which he belongs. As far as medical service is concerned, the best medical care is concerned with prolonging one life for one individual.

Physical sickness is always accompanied by mental and spiritual problems. Medical service must be directed to the whole man. The completeness of his recovery may depend on his mental appraisal of himself, on new outlook, renewed confidence and possibly adjustment to conditions which the individual is powerless to correct. The survival of a normal personality, even with an impared body, is vital to the health of man.

The individual human being may occupy a position in the social structure in which his particular tasks and kind of employment in industry are predetermined by others and are not within his control. The maintenance of a proper respect for the personal identity of of that patient in his efforts to recover physical and mental health is recognized as supreme by medical science. In this contact, the patient must have confidence in his physician, and the physician must be interested in and fully cognizant of his responsibility to the patient. Political medicine lacks the spirit necessary for that service.

Individual medical service goes beyond the treatment of disease. Preventive medicine in the field of general protective measures, water and food sources, vaccination and quarantine are of necessity carried on by governmental organizations. But each person is sick or unhappy in his own way. Preventive medicine, in addition to the general plan, must be directed to the individual patient and his needs for special protection. Again, this requires the individual physician.

Physicians are rapidly expanding preventive service as patients request routine examinations of sufficient detail to determine general health and advice as to future health measures and general plan of living.

Another service of medicine, as yet without distinctive name, has to do with the potential capacities and fitness of an individual for certain fields of endeavor. Many men consult their physicians before undertaking any new enterprise that will require physical or mental or possible emotional change from past patterns. This is a most important personal service. Social thinking should recognize the importance of this service, which will no doubt increase.

The physician continues to extend greater service to the individual. Every important advance in health planning, governmental and civilian, and the superior quality of medical service provided have been fostered by and supported by physicians. Without that support, not one could function. Great harm may be done by overemphasis on the value and the importance of the assumption of authority by the social organization. The value of a social system lies in its provision of opportunity and certain social values to the individual. Any over-all usefulness will depend on the actual, not mythical, value of its function to each person.

The American nation has been described by sociologists as the only instance in which large masses of civilized mankind have enjoyed a regime of unqualified individualism. Modern mass production and mass distribution, city congestion and social structures of increasing complexity have restricted some of the industrial individualism that was America. The individualism of personality must be protected. Psychology of the future must apply itself to the study of values of human life and a proper regard for the need of aims, opportunities for individual interests and progress. Even a consideration of the role of esthetics in human contentment has been named as an important study. Apparently, sufficient social thought has not been directed to these fields.

THE NATIONAL HEALTH PROGRAM

The American Medical Association has long been a close observer of the government-controlled plans of foreign countries designed mainly for peasants and workers with low incomes and with a high percentage of indigency and little medical care. But the situation in America is different and American medicine is planning for a people who already have the highest quality of medical care in the world.

The National Health Program of the American Medical Association is a much broader program than any promoted by advocates of government compulsory plans. The program provides for the interweaving of all the agencies of community life to attain the maximum of results of health and happiness by voluntary effort and individual freedom, government aids to be utilized only in those areas in which the individual and the community require that assistance.

The American Medical Association program indicates the need for standards of nutrition, housing, clothing and recreation. It emphasizes the important of preventive medicine and public health service. Prenatal care, childbirth, infant welfare and child care are recognized as specialized services in which community effort is helpful. Hospitals and health centers are encouraged to meet the need of the communities they serve, and voluntary prepayment plans for hospital and medical care are promoted to finance adequate service. Veterans' care of good standard supplied to those with service-connected disabilities or in need are an obligation of good government. Medical research is fundamental to progress. The voluntary health agencies have developed uniquely in the United States. Health education and fulness of wholesome living round out our health program.

Let social groups now advocating foreign plans turn instead to the American Medical Association in the fulness of an American health program. Present unprecedented health standards are the accomplishment of American medicine in plans and effects, and they will continue to progress. Medicine must and will provide leadership in health.

THE WORLD MEDICAL ASSOCIATION

But medicine must be at the same time local, national and worldwide. Wherever man lives, health is important. The American Medical Association participated in the organization of The World Medical Association in Paris, France, on Sept. 18, 1947. Forty-seven nations were represented in this organization meeting. A meeting of the association will be held in Geneva, Switzerland, in September of this year.

Among the objectives of the World Medical Association are: (1) to promote closer ties among the national medical organizations and among the doctors of the world by personal contact and all other means possible; (2) to study and report on the professional problems which confront the medical profession; (3) to organize and exchange of information on matters of interest to the medical profession; (4) to establish relations with and to present the view of the medical profession to the World Health Organization, UNESCO and other appropriate bodies; (5) to assist all peoples of the world to attain the highest possible level of health, and (6) to promote world peace.

The great world interest in this new medium of world understanding seems to assure an effective future for this organization. Its cooperation is essential to maximum functioning of the World Health Organization.

Medicine is the oldest of the professions. Man owes more of his present advanced status to medicine than to any other field of learning. Without freedom from attenuating disease and without sufficient days of life, education, culture and progress would have been impossible.

The consideration of health needs common to all nations, a better understanding and assistance in the development of the best possible medical service to the whole world is a new thought and an opportunity of promise. If medicine, the oldest and most effective service to man, can assist the world to a greater measure of health, given a reasonable opportunity for happy living, more progress may be made toward a lasting peace than government has been able to accomplish throughout years of war.

CONCLUSION

American medicine has grown to its present high position in science and its unequalled service to the public by progress under the principles set forth by the founders of the nation: (1) the greatest freedom of the individual to control his own personal matters not subservient to the state; (2) the provision to the individual patient of the best possible medical service by his individual physician, not by the political employee of the state; (3) the opportunity of the individual physician to progress to greater scientific attainments and better medical service, free from the deteriorating influence of government political control.

This, in analysis, is the spirit of the progress of American medicine.

SYMPATHECTOMY FOR ESSENTIAL HYPERTENSION

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In the past fifteen years, sympathectomy has been carried out for essential hypertension in several thousand patients. Notwithstanding the analysis of much of this material, not even an approach to unanimity as to the value of the operation has been attained. Opinions vary from the belief[1] that sympathectomy is indicated in a high proportion of patients with essential hypertension to the view[2] that the operation is of little more value than symptomatic management.

Almost all the larger series[3] of sympathectomies have been reported by surgeons who performed the operation on patients referred by different physicians. This paper is based on patients selected for operation by a single internist and followed by him after operation. The report thus represents an evaluation of sympathectomy from the point of view of a physician who is at the same time treating other—many more—hypertensive patients without operation and has thus a control in his own experience for assessment of the symptomatic results. The observations seemed, further, to throw light on the mechanism of symptomatic relief by sympathectomy, as well as on the pathogenesis of the cerebral and retinal manifestations of hypertension.

MATERIAL

The 119 patients had essential hypertension, so far as could be determined by means short of renal biopsy. When there seemed to be doubt whether the hypertension was essential or due to glomerulonephritis or pyelonephritis, operation was not performed. Two of the patients had Adson's[4] infradiaphragmatic sympathectomy, 8 Peet's[1] supradiaphragmatic operation and 109 Smithwick's[5] thoracolumbar sympathectomy.

SELECTION OF PATIENTS

Sympathectomy was advised or rejected on the basis of the following indications and contraindications:

Indications for Sympathectomy.—The clinical manifestations which mainly motivated the decision to operate were one or more of the following:

Headache was experienced by 83 patients. It was severe and not satisfactorily relieved by "medical treat-

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From The Joseph and Helen Yeamans Levy Foundation in Memory of Miriam Levy Finn, Beth Israel Hospital, New York.

1. Peet, M. M., and Isberg, E. M.: The Surgical Treatment of Arterial Hypertension, J. A. M. A. 130:467 (Feb. 23) 1946.
2. Goldring, W., and Chasis, H.: Hypertension and Hypertensive Disease, New York, The Commonwealth Fund, 1944, p. 157.
3. Grimson, K. S.: The Surgical Treatment of Hypertension; in Dock, W.; Snapper, I., and others: Advances in Internal Medicine, New York, Interscience Publishers, Inc., 1947, vol. 2, p. 173.
4. Adson, A. W., and Allen, E. V.: Essential Hypertension: II. The Rationale and Methods of Surgical Treatment, Proc. Staff Meet., Mayo Clin. 12:49 (Jan. 27) 1937.
5. Smithwick, R. H.: A Technique for Splanchnic Resection in Hypertension, Surgery 7:1 (Jan.) 1940.

ment." Most often the headache was so severe that the sufferer was willing to undergo operation merely for the relief of this one symptom, whether or not the hypertension was significantly reduced. Twenty-three patients had retinal lesions. Of these, 17 had papilledema, almost always with hemorrhages and exudates; 6 had hemorrhages and/or exudates; and 2 had thrombosis of a central vein. Congestive heart failure improved by preoperative treatment to a state of tolerable compensation with normal circulation time and venous pressure was present in 11 patients. Eight patients had cerebral hemorrhage; 8 patients restlessness and fatigability of incapacitating severity (never taken as the sole indication); 4 patients convulsions due to hypertensive encephalopathy; and 1 patient Raynaud-like symptoms. Nineteen patients were asymptomatic with high and rising diastolic pressure (over 130 mm. in a majority of repeated examinations).

Contraindications to Sympathectomy.—The patients operated on did not have any of the following contraindications: 1. Pronounced impairment of renal function. No patients were operated on in whom the nonprotein nitrogen of the blood exceeded 40 mg. per hundred cubic centimeters or who were unable to concentrate the urine to a specific gravity of 1.019 or more. 2. Congestive failure not relieved by treatment. However, several patients were operated on in whom gallop rhythm persisted. 3. Auricular fibrillation, flutter or heart block. After a patient with frequent ventricular extrasystoles not eliminated by quinidine died suddenly while being wheeled from the operating table, none with this arrhythmia were operated on. 4. Cardiac pain occurring paroxysmally, generally constricting in nature, relieved by glyceryl trinitrate and considered probably to indicate high grade coronary narrowing by arteriosclerosis with resultant coronary insufficiency. On the other hand, dull precordial ache often present for hours and unaffected by nitroglycerin was not taken as a contraindication. The reasons for the exclusion of patients with anginal pain soon after the beginning of the series were the sudden death of 1 such patient two days after operation from acute coronary insufficiency and the a priori probability that sudden fall in blood pressure may precipitate coronary insufficiency when the coronary arteries are much narrowed. 5. Evidence of widespread, high grade cerebral arteriosclerosis in the form of repeated cerebral vascular accidents, mental deterioration or depression. However, a single cerebral hemorrhage was not taken as a contraindication and sometimes was evaluated as favoring operation. 6. No patients were operated on in whom diastolic pressure did not exceed 110 mm. in a majority of repeated examinations. 7. Because of the probability of much arteriosclerosis, operation was not advised in patients over 55 years. In those between 50 and 55 years, operation was advised only with extreme circumspection and because of either insufferable headache or retinal lesions.

The effect of three hourly doses of 0.2 Gm. of "amytal sodium" on the blood pressure was observed preoperatively in most of the patients. The test did not prove of much help in selection of patients. There was some correlation between the fall in blood pressure resulting from the hypnotic and the outcome of the operation, but it was not close and there were many discrepancies. Moreover, pronounced fall in blood pressure repeatedly followed administration of "amytal sodium" in patients with nephritic hypertension or who were revealed by azotemia to be unsuitable for operation.

In deciding whether sympathectomy was called for, stress was laid on the analysis of the clinical picture into the part directly due to hypertension and that due to arteriosclerosis. Thus, hypertension and coronary arteriosclerosis are of varying relative importance in the pathogenesis of heart failure in different hypertensive patients. Likewise, hypertension and cerebral arteriosclerosis vary in their contribution to headache and other cerebral symptoms in persons with essential hypertension. Those symptoms which are due to arteriosclerosis will not be helped and may be aggravated by sympathectomy; e.g., coronary insufficiency following operation in persons with severe coronary arteriosclerosis and deep mental depression after sympathectomy in those with cerebral arteriosclerosis (both observed in this series). Smithwick's[6] observation that the results of sympathectomy are less satisfactory when the pulse pressure is high probably is explained by the high pulse pressure manifesting severe arteriosclerosis of the aorta and other large arteries.

BENEFITS OF SYMPATHECTOMY

Sympathectomy has both benefits and untoward effects; evaluation of the operation demands that advantages and disadvantages be counterbalanced. In these observations the benefits were as follows:

1. *Lowering of Blood Pressure.*—At the last measurement the diastolic pressure was 25 per cent or more below the preoperative level in 25 per cent of the patients and systolic pressure had fallen similarly in 32 per cent. In 18 per cent the last blood pressure reading was 150 mm. systolic and 100 mm. diastolic or less.

The most striking effect on the blood pressure was in the following case:

> A man of 36 years was known for three years to have essential hypertension. He had severe occipital headaches during this period. Preoperative blood pressure averaged 200 mm. systolic and 135 mm. diastolic; he had narrowed retinal arterioles with arteriovenous compression. He underwent thoracolumbar sympathectomy in December 1941. He has felt entirely well since recuperating from the operation and has worked hard. In October 1947, his blood pressure was 116 mm. systolic and 75 mm. diastolic.

From Table 1 it will be noted that in each age group the blood pressure averages lower than the preoperative level. The 119 patients had an average preoperative blood pressure of 218 mm. systolic and 135 mm. diastolic; at the last examination, which averaged thirty-two months after operation, the average blood pressure was 184 mm. systolic and 118 mm. diastolic. There was thus an average fall in systolic pressure of 16 per cent and in diastolic pressure of 13 per cent.

While the natural history of essential hypertension exhibits pronounced fluctuation in the blood pressure, the tension in untreated patients usually does not tend to fall over a protracted period. Inasmuch as almost all the patients in this series were given "medical treatment" for months or years before operation, it seems definite that the fall in pressure after the operation is the result of the sympathectomy.

In most patients the pressure falls close to normal for a postoperative period of weeks or a few months. This period is too brief to be of much significance, and is not included in the tables. Most often the pressure then gradually rises. However, in some the pressure has remained below 150 mm. systolic and 100 mm. diastolic for periods of observation up to almost six years (table 2). In interpreting the relatively high proportion of such satisfactory pressure levels in the group followed for between forty-nine and seventy-two months, it should be borne in mind that 20 patients—including those responding least well to sympathectomy—had succumbed at earlier periods. Moreover, 2 of these patients had had myocardial infarction long after the operation, which presumably participated in keeping the blood pressure down.

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[6] Smithwick, R. H.: The Surgical Treatment of Hypertension, New York State J. Med. 44: 2693 (Dec. 15) 1944.

TABLE 1.—*Results of Sympathectomy in Essential Hypertension*

Age	20-29	30-39	40-49	50-55	Total
Patients	8	40	66	5	119
Follow-up (months)					
Average	40	34	30	35	32
13-24	1	10	28	1	40
25-48	4	19	22	3	48
49-72	3	7	7	1	18
Over 72		2	1		3
Operative Deaths			4		4
Later Deaths		8	10		18
Average Preoperative Blood Pressure	196/129	214/137	220/134	228/133	218/135
Average Postoperative Blood Pressure *	156/106	188/121	183/119	180/111	184/118
Blood Pressure Under 150/100 *	1	9	11	4	22
Systolic Blood Pressure 25% Lower *	2	12	22	2	38
Diastolic Blood Pressure 25% Lower *	3	12	16	1	32
Systolic Blood Pressure Higher *	1	4	10	1	16
Diastolic Blood Pressure Higher *	1	8	11	1	21
Worth While Symptomatic Improvement *	4	23	29	3	59

* Findings at the last examination.

2. *Symptomatic Improvement.*—It is obviously difficult to assess symptomatic improvement. There is often great fluctuation in the symptoms of untreated patients; for no discernible reason, such symptoms as headache, *vertigo, restlessness and precordial pain may disappear* for months or years. However, once severe symptoms have set in, such spontaneous improvement for more than a few months is much the exception. Of the 119 patients, 100 had symptoms due to hypertension; of these 100, at the last examination there was symptomatic improvement which seemed "worth while" to me in 59. In others there was symptomatic relief for a shorter period, but symptoms of considerable severity had returned before the last examination; these results were not regarded as worth while in this evaluation.

TABLE 2.—*Results at Successive Periods After Sympathectomy*

Time After Operation (Months)	Patients	Blood Pressure Under 150/100 mm.	Diastolic Blood Pressure 25% Lower	Worth While Symptomatic Improvement	Deaths
13-24	40	10	13	22	10*
25-48	48	6	12	24	6
49-72	18	6	7	12	1
72 plus	3			1	1

*These 10 deaths occurred in the first twenty-four months (6 in the first year); they do not include 4 operative deaths.

The symptom most often relieved by the operation was headache. Of the 83 patients who suffered from headaches so severe that they were a factor in impelling operation, 64 had no or only slight headache up to the time of the last examination. Among those completely relieved were patients who had suffered from headache for five to fifteen years. Most often completely relieved was a type of headache especially apt to result from hypertension, namely, occipital headache frequently radiating down the back of the neck, present when the patient awakens, and often relieved after he gets up and about. Headache was repeatedly relieved in patients in whom there was little change in blood pressure.

Other cerebral symptoms of hypertension, notably restlessness, pounding in the head, inability to concentrate and vertigo, were also relieved in a high proportion of the sufferers. The convulsions of hypertensive encephalopathy did not recur in any of the 4 patients who had had them.

Impairment of vision due to retinopathy was several times improved.

These observations contain less data on the effect of sympathectomy on the cardiac symptoms of hypertension because patients with manifest heart failure or angina pectoris were excluded. However, in several instances gallop rhythm disappeared after operation, the inverted T waves indicative of left ventricular strain became upright, and the enlarged heart decreased in size. Dull precordial pain disappeared several times. In 1 patient not included in this series—a physician, who was operated on against my advice—high grade left ventricular failure, which had incapacitated the patient for months, cleared up so completely after operation that the patient has been able to practice actively for five years since.

No patients with significantly impaired renal function are included in this series. However, I have seen several persons with bad renal function who underwent sympathectomy on the advice of others; in none was the performance of the kidney improved. This is contrary to the findings of Peet and his associates,[1] who have observed improvement in renal function. The albuminuria of more than minimal degree present in 28 cases was not definitely affected.

3. *Clearing of Retinal Lesions.*—Few manifestations of hypertension imply a worse prognosis than neuroretinopathy. For this reason, the rapid improvement in the fundus that often follows sympathectomy is as significant as it is striking. Seventeen of the patients had papilledema, accompanied in 15 by hemorrhages and exudates. After operation, the papilledema, hemorrhages and exudates cleared (sometimes leaving residua) in 12 cases. In the 4 instances of longest duration of improvement, the disk and retina are still normal *seventy-one, sixty-nine, fifty-two and forty-five months* after sympathectomy. In 3 patients the retinal lesions recurred after complete clearing. Of the 17 patients with hypertensive neuroretinopathy, 10 are still alive. Of the 7 who died, 5 were patients in whom the fundus never cleared, while the remaining 2 succumbed to heart failure without recurrence of the retinal lesions.

4. *Economic Rehabilitation.*—Many of the patients who were unable to work for months prior to operation because of headache, restlessness, weakness or other symptoms were economically rehabilitated so that they returned to their occupation or household duties. Sometimes the rehabilitation was only transitory, but in others it has already lasted from two to six years. A dentist who was unable to practice for a year before operation put in a full day's work for four years after sympathectomy until he suffered a myocardial infarction; the headache and restlessness which had incapacitated him did not return.

5. *Prolongation of Life.*—The question whether sympathectomy prolongs life is difficult to answer because of inability to estimate even roughly what the duration of life would have been without surgical treatment It would seem that in those cases in which the blood pressure is strikingly and protractedly lowered with decrease in the size of the enlarged heart and disappearance of the electrocardiographic pattern of left ventricular strain, the operation should tend to prolong life. The best objective evidence that sympathectomy prolongs life in some patients is afforded, as pointed out by

Peet,[1] by patients with neuroretinopathy. For hypertensive neuroretinopathy (papilledema, usually with hemorrhages and exudates) to disappear completely in the natural course of the malignant phase of essential hypertension is so rare as to constitute a clinical curiosity, although it apparently occurs less rarely with rigid restriction of sodium chloride. Such clearing occurred in 12 of 17 cases. Moreover, of the 17 patients with hypertensive neuroretinopathy, 10 are still alive; 6 of these have survived over three years since operation. The 2 who have survived longest feel well and are without retinal lesions seventy-one and sixty-nine months after sympathectomy. Inasmuch as about 90 per cent of patients with papilledema due to essential hypertension succumb within two years, there would seem to be little doubt that sympathectomy has prolonged life, and usefully so, in some of these patients.

UNTOWARD EFFECTS OF SYMPATHECTOMY

Unfortunately, in addition to these benefits, sympathectomy also has its disadvantages:

1. The operative mortality in this series was 3.5 per cent. This mortality occurred notwithstanding that only patients were operated on who seemed to be as good surgical risks as can be expected in persons with severe hypertension. However, 1 patient who died early in the series had angina pectoris and would not now be operated on. But even the most painstaking selection cannot entirely eliminate the operative risk; another operative death occurred in an asymptomatic man of 40 years who was operated on only because his blood pressure had risen rather rapidly to 230 mm. systolic and 140 mm. diastolic.

2. Extensive thoracolumbar sympathectomy in two stages usually entails much postoperative discomfort or even suffering. In our cases the period of hospitalization averaged well over one month. Entry into the pleura, infection and other complications often aggravate the patient's ordeal.

3. Following operation there is often a period of many months or even a year or more in which orthostatic hypotension causes discomfort, although this can be mitigated by elastic bandages and lower abdominal compression. Neuritic pains in the back or of girdle-like distribution are sometimes severe for many months. Cold hands may be annoying.

4. The economic burden is often great. It is unusual for the patient to be able to return to his occupation in less than three months and often it is longer.

5. Resection of lumbar ganglions often results in absence of ejaculation with resultant sterility.

6. Sympathectomy is at best a palliative and not a curative procedure. Despite the frequently pronounced and protracted lowering of blood pressure and symptomatic improvement, not 1 patient in this series is regarded as "cured." In every instance, the last examination revealed evidence of hypertensive disease. In the large majority of instances the blood pressure was still definitely above normal. But even when frequent readings below 150 mm. systolic and 100 mm. diastolic were obtained, occasional rises above this level revealed the persistence of the underlying hypertensive disease. Further evidence of abnormal vasoconstriction in the areas not affected by the sympathectomy was narrowing of the retinal arterioles even in patients with lowered blood pressure.

7. Arteriosclerotic symptoms may be aggravated. A large proportion of patients with essential hypertension have advanced sclerosis of large arteries in various parts of the body. With the fall in blood pressure produced by sympathectomy, manifestations of inadequate blood flow through these narrowed arteries may first appear or increase. Two of the patients first experienced intermittent claudication of the lower extremities when arising after operation. In several instances angina pectoris first appeared within two years after operation, which produced much lower blood pressure, in patients without previous cardiac symptoms; there were 7 deaths from myocardial infarction. Several patients whose blood pressure had been lowered experienced severe depression after operation; 1 committed suicide. In these patients, who had not been depressed before operation, inadequate cerebral blood flow seemed the most likely explanation. When the arteriosclerotic symptoms first appeared soon after the operation, fall in blood pressure probably reduced the blood flow; in those in whom coronary insufficiency or other arteriosclerotic manifestations developed months or years after operation, progression of the arteriosclerosis was presumably the important factor. After the first year, deaths are most often due to arteriosclerotic complications in the heart or brain.

MECHANISM OF RELIEF OF HEADACHE AND RETINOPATHY

From table 1 it can be seen that at the last examination the blood pressure was below 150 mm. systolic and 100 mm. diastolic in 22 of the 119 patients. The diastolic pressure was 25 per cent or more below the preoperative level in 30 of the 119 patients (including all those with pressure below 150 mm. systolic and 100 mm. diastolic) or 25 per cent. On the other hand, worth while symptomatic improvement occurred in 59 patients. Since 19 of the 119 patients were asymptomatic before operation, worth while symptomatic improvement was obtained in 59 per cent of those with symptoms.[7]

Worth while symptomatic improvement thus occurred more than twice as often as did a fall in diastolic pressure of 25 per cent or more. Moreover, there were several patients with striking and protracted symptomatic improvement despite no fall in blood pressure or in whom the systolic and diastolic pressures were higher than preoperatively.

In the large majority of the cases, most of what is here termed "worth while symptomatic improvement" applies to headache and, less often, retinopathy. In most of the patients, headache, severe and frequent before operation, disappeared. One had almost continuous headaches for four months before operation and another frequent headaches for fifteen years; neither has had any headache in the more than two years since operation. In several cases headache, severe before sympathectomy, never returned despite the fact that the pressure remained high and the patient succumbed to cardiac or renal failure. Likewise, clearing of retinopathy was observed without fall in pressure.

The remarkable frequency with which headache and retinopathy are eliminated by sympathectomy has been noted since the first operations, but the mechanism of relief has not been entirely elucidated. Reduction in blood pressure and decrease in pressor response to emotional and other stimuli doubtless are primary factors in relief of headache and retinopathy ("albuminuric retinitis" never develops except in the wake of diastolic hypertension). But these mechanisms do not operate in the numerous cases in which headache and retinopathy vanish after operation despite little change in blood pressure

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progressed.

or even a rise. Observations made in the course of this study indicate that the mechanism by which sympathectomy may relieve headache and retinopathy even when the blood pressure is unaltered is a redistribution of blood so that a smaller fraction of the cardiac output is distributed to the cephalic portions of the body with resultant decrease in blood flow to the head. The phenomena which bespeak such a redistribution of blood are:

1. After sympathectomy, the narrowing of the retinal arterioles present in severe hypertension persists. This is the observation which originally suggested that the often remarkable relief of the cephalic symptoms of hypertension by sympathectomy may be due to redistribution of blood with diminished cranial blood flow. It has been stated that the constriction of the retinal arterioles may be relaxed after operation. Despite careful comparative observations before and after sympathectomy for several years, I have not been able to detect such relaxation. The caliber of the arterioles has not been augmented by the operation, the narrowing present before sympathectomy persisting. This has been the case whether or not the blood pressure has been lowered and whether or not retinal lesions cleared up.

The persistence of the narrowing of the arterioles of the retina is really what one would anticipate, for this vascular territory is not denervated.

2. In at least the first months after operation the hands of the patient on whom sympathectomy has been done are generally cooler than before operation. Contrariwise, the feet are warmer. Normally, the hands are warmer than the feet, but this is reversed after adequate sympathectomy (table 3). The cold hands and warm feet indicate the redistribution of blood flow toward the caudal parts of the body.

TABLE 3.—*Skin Temperature Before and One Month After Thoracolumbar Sympathectomy*

	Preoperative	Postoperative
Forehead	94F.	93F.
Nose	94	89
Cheek	96	94
Chin	95	94
Ear	92	89
Chest	94	94
Abdomen	92	94
Arm	94	91
Forearm	94	90
Wrist	93	89
Palm	94	88
Thumb	92	85
Thigh	90	94
Knee	90	92
Ankle	85	93
Dorsum of foot	85	95
Toe	73	95
Sole	76	94
Heel	75	93

3. *Orthostatic hypotension may occur.* For months after operation fall in blood pressure in the erect posture with resultant giddiness and even blackouts may be an annoying feature. The denervation of the vessels in the caudal parts of the body prevents the reflex vasoconstriction which participates importantly in the maintenance of arterial pressure in the erect posture. The consequence is that assumption of the erect posture is accompanied by fall in arterial pressure, pooling of blood in the caudal parts of the body and decrease in cerebral blood flow.

The redistribution of the blood is a manifestation of the very nature of the operation. A primary function of the sympathetic innervation of the vessels is the regulation of the distribution of the cardiac output. Thus during exercise vasoconstrictor impulses over the splanchnic nerves divert blood to the extremities, while during digestion stimuli over the vasoconstrictor nerves of the peripheral vessels shift blood to the splanchnic area. Thoracolumbar sympathectomy denervates the vessels of the caudal but not of the cephalic parts of the body. The result is a change in the pattern of the peripheral resistance to blood flow which consists in diminution in resistance in the caudal regions of the body with no change (if not an increase) in the cephalic parts. The consequence can only be an increase in the fraction of the total cardiac output (known to be unchanged) which flows to the caudal parts of the body and a corresponding decrease in the volume of blood flow to the cephalic regions.

There are several clinical circumstances in which diminution in blood flow to the head seems to be associated with relief from hypertensive headache. Few hypertensive patients with pronounced heart failure complain seriously of headache. The development of heart failure in hypertensive patients with headache is accompanied by disappearance of the headache even though the diastolic pressure remains high. Phlebotomy has long been used to treat intractable hypertensive headache. Perhaps the most characteristic form of headache due to hypertension is one which awakens the patient in the morning after long hours of recumbency; such headache is frequently alleviated when the patient gets up and about, and Allen[8] pointed out that the headache can sometimes be averted by having the patient sleep with the head of the bed elevated.

The identity of the pain-sensitive structures responsible for hypertensive headache is not known. The fact that sympathectomy may relieve the headache without change in blood pressure points to the possibility that the headache is due to distention of and rise in pressure in the postarteriolar vessels (capillaries and veins). There is evidence (Cobb[9]) that the cerebral arterioles constrict as a result of nervous stimulation much less forcefully than the extracranial arterioles. In hypertension there may be, as a result of the less forceful constriction of the cerebral arterioles, a rise in cerebral capillary pressure, which decrease in blood flow to the head following sympathectomy tends to counteract.

Retinopathy.—The remarkable frequency with which sympathectomy is followed by disappearance of papilledema, exudates and hemorrhages has been observed before and was striking in these observations. Clearing of the retinopathy was observed not only in patients in whom the blood pressure was reduced, but also when the pressure did not fall or even rose. Thus, in a man of 53 years operated on too recently for inclusion in this series, headache present almost daily for five months before operation and retinopathy (papilledema, hemorrhages, exudates) have disappeared in the face of rise in blood pressure from a preoperative level of about 200 mm. systolic and 130 mm. diastolic to 230 mm. systolic and 140 mm. diastolic with peaks as high as 270 mm. systolic and 160 mm. diastolic.

Ophthalmoscopic observations before and after operation showed no increase in the caliber of the attenuated retinal arterioles in the patients in whom the retinal lesions disappeared. This observation does not agree with Volhard's[10] widely accepted theory that "albuminuric retinitis" is due to angiospastic ischemia of the retina. Since the constricted retinal arterioles do not relax after operation, it is hard to see how fall in blood pres-

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8. Allen, E. V., and MacLean, A. R.: Relief of "Hypertension" Headache with the "Head-Up" Bed, Proc. Staff Meet., Mayo Clin. **15**: 523 (Aug. 14) 1940.

9. Cobb, S.: Review of Neuropsychiatry for 1938, Arch. Int. Med. **62**: 891 (Nov.) 1938.

10. Volhard, F.: Ueber die Retinitis albuminurica, Verhandl. d. deutsch. Gesellsch. f. inn. Med. **33**: 422, 1921.

sure would favor the clearing of retinal lesions of ischemic pathogenesis. These observations would seem, rather, to indicate that the retinal lesions are due to propagation of high arterial pressure to the retinal capillaries with resultant transudation and hemorrhage. They also suggest that the same mechanisms of fall in blood pressure and redistribution of blood flow away from the cephalic parts of the body which alleviate headache also lower the pressure in the retinal capillaries and venules with consequent regression of the papilledema, exudates and hemorrhages.

EVALUATION OF SYMPATHECTOMY

None of the patients here reported on was cured. From these observations, sympathectomy is a palliative and not a curative measure.

Although sympathectomy is only a palliative measure, many patients derived sufficient benefit from the operation to make it worth while. In deciding whether sympathectomy is advisable, the possible advantages and disadvantages should be counterbalanced for the individual patient. On the basis of the benefits and untoward effects observed in this series, the present status of sympathectomy appears to be as follows:

1. Sympathectomy should rarely be advised unless the patient has first failed to respond to rigid restriction of sodium chloride and to rest.

2. Sympathectomy is indicated in patients in whom a relatively rapid downhill course seems likely because of: (a) rise in diastolic pressure from a previously lower level to 130 mm. or more in several separate examinations; (b) papilledema, retinal hemorrhages or retinal exudates; (c) intractable headache; (d) cerebral hemorrhage or hypertensive encephalopathy; (e) heart failure overcome by treatment.

3. Sympathectomy is contraindicated in patients with impairment of renal function severe enough to be documented by azotemia or pronounced diminution in concentrating ability. Sympathectomy is generally inadvisable in patients with congestive heart failure not overcome by treatment, although 1 patient with severe pulmonary engorgement due to left ventricular failure has had remarkable improvement with economic rehabilitation for the first five years since operation.

4. Sympathectomy is contraindicated in patients whose symptoms are due to arteriosclerosis of the heart, brain or extremities; aggravation of these symptoms may result from abrupt fall in blood pressure. Because of the great frequency with which the complaints of hypertensive patients past 50 years are due to associated arteriosclerosis, sympathectomy is rarely indicated at this age. None of our patients was 55 years or more.

5. Sympathectomy is not indicated in asymptomatic patients in whom the diastolic pressure is consistently below 130 mm. In such cases the chances of useful and comfortable life for five, ten and not rarely more years seem to me more than to counterbalance the risks and untoward effects of the operation. Moreover, in these observations there has been little correlation between the duration of the hypertension and the success of the operation. Asymptomatic patients can be placed on suitable restrictions and watched, and sympathectomy can be advised if the pressure rises or severe headache or retinal lesions appear.

Discovery of essential hypertension in a youthful subject is not per se an indication for operation. Most patients in whom hypertension is discovered in their teens or early twenties have more than a decade, most often probably two or more decades, of well-being before them. Moreover, there is no certainty that sympathectomy will be successful in youthful subjects. The operation was performed on an asymptomatic youth aged 17 whose hypertension was of two years' duration; the blood pressure of 175 mm. systolic and 120 mm. diastolic has changed little in the five years since.

Using these criteria, the writer recommended sympathectomy in about 4 per cent of the patients with essential hypertension seen in the past year. In view of the fact that some were referred because operation was under consideration, in general practice the proportion would probably be smaller. Helpful and even life saving though sympathectomy is to some patients, at present it fills only a small gap in the great therapeutic problem of essential hypertension.

SUMMARY

One hundred and nineteen patients with severe essential hypertension were selected for sympathectomy and followed by the same observer for an average of thirty-two months. There were 4 operative and 18 subsequent deaths. The diastolic pressure was reduced 25 per cent or more in 30 patients. Worth while symptomatic improvement occurred in 59 per cent. Headache was the symptom most often relieved. Retinopathy cleared in 12 of 17 patients. Headache and retinopathy may disappear after operation without fall in blood pressure. It is suggested that the reason why cephalic manifestations (headache, retinopathy) of hypertension are the most favorably affected is that sympathectomy results in a redistribution of the cardiac output with a smaller fraction going to the cephalic portions of the body. The results of sympathectomy offer evidence that rise in pressure in the minute vessels of the brain and retina is of great importance in the pathogenesis of hypertensive headache and retinopathy. Sympathectomy is a palliative and not a curative procedure. After a weighing of the favorable and untoward effects, it is concluded that sympathectomy is indicated in less than 4 per cent of patients with essential hypertension.

RHEUMATIC FEVER IN CHILDHOOD

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Columbia, S. C.

The voluminous literature that has appeared in the last few years confirms the observation made by Sir Thomas Watson in 1843 that rheumatic fever is a disease of childhood. It also suggests that the many reported cases of heart disease appearing at different periods of life have their origin in rheumatic fever of childhood—thus a pediatric problem.

Rheumatic fever is an acute or chronic systemic disease probably of infectious origin characterized by fever, joint, muscular, skin and nervous manifestations which frequently involves the heart and has a tendency to recur.

HISTORY[1]

Hippocrates was credited by Chomel with describing acute arthritis. The term rheumatism was first used by Ballonius (Baillou) (1535-1616), but his work appeared in 1642 posthumously. Sydenham gave the first satisfactory clinical description of the differential diagnosis between acute rheumatism and gout in 1676. What is known as Sydenham's chorea was described by him a few years later. Independently and about the same time, in 1789 Jenner and Pitcairn gave lectures in which

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Read before the Section of Pediatrics at the Ninety-sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

[1] Wilson, M. G.: Rheumatic Fever, New York, The Commonwealth Fund, 1940.

they demonstrated the association of rheumatism with heart disease. In 1833 Bouillaud emphasized the constant association of rheumatism and heart disease, stressing the frequent occurrence with rheumatism of both endocarditis and pericarditis. Wells first described subcutaneous nodules in 1810. Bright in 1831 recorded erythematous rashes in association with chorea and its close "affections of the pericardium." Sir Thomas Watson in 1843 "recognized rheumatic fever as essentially a disease of childhood." Cheadle, Sturges, Barlow, Lees, Garrod, Poynton, Payne, Coombs and Mantle are the names associated with this disease in the latter part of the last century and the first part of this century. MacLagan first emphasized the salicylic drug as of benefit in rheumatic fever in 1876. In 1904 Aschoff described the specific interstitial myocardial lesions usually called "Aschoff bodies."

ETIOLOGIC FACTORS

The etiology of this disease has not been determined. It is truly a research problem which a number of investigators have undertaken, but indisputable confirmatory evidence. has not been presented. Jones[2] and other authors have pointed out in connection with rheumatic fever that the original focus of onset depends on the implantation of the hemolytic streptococcus A group, usually in the upper respiratory tract. There is almost conclusive evidence that the hemolytic streptococcus is a causative agent, but the mechanism remains obscure. Lichtwitz[3] expressed the opinion that rheumatic fever is a noninfectious disease and is not caused by specific micro-organisms which may be pathogenic or nonpathogenic. He directed attention to the similarity between serum sickness and a certain type of rheumatic disease which might indicate that the sensitizing antigens may also arise in response to foreign proteins that are not of microbic origin. The subject of sensitizing is brought out clearly by Coburn,[4] who stated the belief that there is an abnormal response to the hemolytic streptococcus in the rheumatic subject, implying both the genetic and the conditioning factor, and he outlined the response to the attack. Three soluble antigenic principles are produced in vitro; namely, erythrogenic toxin, fibrinolysin and streptolysin.

A virus organism as the cause of this disease is doubtful; it now appears that the weight of evidence and most authorities believe hemolytic streptococcus group A which produces an antigen that acts in a sensitizing manner is the chief cause of this disease.

CONTRIBUTORY CAUSES

Heredity.—Heredity is an important factor. Approximately 5 per cent of all children fall into the genetically susceptible group. The gene follows the mendelian recessives, which is clearly demonstrated by Wilson's[5] diagram, used by her permission and that of the publishers.

Nutrition.—An analytic study of the diet of our patients reveals that the carbohydrates are high and the proteins low. It has been demonstrated that when patients with rheumatic fever are given a nutritious diet it tends to prevent recurrences[6] The foods suggested were eggs (particularly yolks), meat, milk and calcium:

Economic and Environmental Factors.—The majority of these cases are found in the poorer class. In all classes faulty diets may be discovered. Poor housing, improper clothing and unhygienic surroundings are important contributory factors. Exposure to sudden changes in temperature with dampness increases susceptibility to respiratory and other infections. Coburn[4] called attention to the fact that the mortality from rheumatic fever is much higher in England than in the Netherlands. He expressed the opinion that it is not the environment or the climate but dietary deficiencies which are responsible.

TABLE 1.—*Prediction Chart for Childhood Rheumatism**

Mating	Expected No. Rheumatic Children Before Ocurrence of Rheumatic Child	Expected No. Rheumatic Children After Occurrence of Rheumatic Child
Both parents positive	All (nearly)	All
One parent positive, the other parent's relatives as follows:		
One parent or many siblings positive	One half	One half
One sibling or many aunts and uncles positive	One third	
One aunt or uncle positive	One sixth	
Both parents negative but one grandparent of each line positive	One quarter	One quarter
Both parents negative and rheumatic fever remote or absent in relatives	Unlikely	

*Based on the interpretation of a single recessive gene.

INCIDENCE

Rheumatic fever has the highest mortality among the diseases of children. Its distribution is universal, but it is more prevalent in cold damp climates than in those that are warm and dry. This observation may be illustrated as far as the United States is concerned by a graphic chart, "Studies in Rheumatic Fever," by The Metropolitan Life Insurance Company,[7] which shows a high incidence of rheumatic fever in the New England states and certain of the Rocky Mountain states and a low incidence in the Midwestern and Southern states (fig. 1).

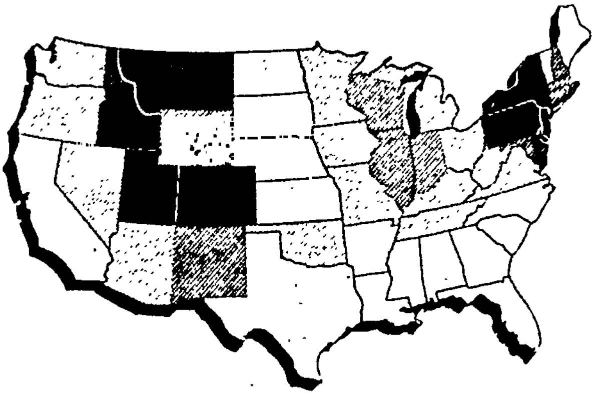

Fig. 1.—Map showing death rates from rheumatic fever for the years 1939 to 1941 among white persons aged 5 to 24 years. Solid black, very high rate (9 or more per hundred thousand); heavy diagonal bars, high (7 to 8.9 per hundred thousand); light diagonal bars, medium (5 to 6.9 per hundred thousand); white, low (under 5 per hundred thousand). A relative concentration of rheumatic fever in certain areas is evident. Rates of sickness from the disease in army camps show a less definite pattern but are generally highest in the Rocky Mountain area. (Chronic rheumatic heart disease is included.)

The work which the American Council on Rheumatic Fever of the American Heart Association, Inc., is doing deserves commendation; the results of the investigation of these organizations has stimulated physicians to greater study and more careful investigation by emphasizing the prevalence and seriousness of rheumatic fever. Consequently many unsuspected cases are being discovered. Some aspects of the disease are well known and clear but others are puzzling, so that it deserves careful study in the hope of finding out more about the disease. Added interest is being shown in rheumatic fever because the experience in the recent war revealed a great many cases. "Preliminary study shows the rejection rate for rheumatic fever, including history of rheumatic fever, was approximately 3 per 10,000."[8] "Also preliminary data, pending final analysis of medical records, shows that there were approximately 17,900 cases of rheumatic fever reported in the Army during the period 1942-1945 inclusive."

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[2] Jones, T. D.: Chronically Ill Cardiac Children in Institutional and Foster Homes, Am. J. Pub. Health 31:813 (Aug.) 1941.

[3] Lichtwitz, L.: Pathology and Therapy of Rheumatic Fever, New York, Grune & Stratton, Inc., 1943, chap. 2, p. 4.

[4] Coburn, A. F.: Rheumatic Fever Problem, Am. J. Dis. Child. 70:339 (Nov.-Dec.) 1945.

[5] Wilson,[1] p. 54.

[6] Coburn, A. F., and Moore, L. V.: Nutrition as Conditioning Factor in Rheumatic State, Am. J. Dis. Child. 65:744 (May) 1943.

[7] Studies in Rheumatic Fever, New York, Metropolitan Life Insurance Company, November 1944, p. 12, chart 9, no. 1.

There are probably more than 1,000,000 cases of rheumatic fever in the United States, with at least one half of the total, or 500,000 cases, among children.[9] "In Boston and New York, about one half the cases with rheumatic heart disease who were subjected to special review had a history of rheumatic fever or chorea in childhood."[10]

A survey of school children in Dublin, Ga., revealed organic heart disease in 1.5 per cent. Rheumatic heart disease was found in 1 per cent of all school children examined, 1.26 per cent of the white children and 0.60 per cent of the Negro children. The incidence of rheumatic fever was 2 per cent, 2.10 per cent among white children and 0.60 per cent among Negro children.[11] This again shows that white children are more susceptible than Negro children.

Yueda,[12] in a ten year review of autopsies at the Charity Hospital in New Orleans, Jan. 1, 1935, to Jan. 1, 1945, discovered 167 cases of rheumatic fever, which is 1.35 per cent. These figures are practically the same as those for Northern cities. He concluded that Negroes are not more susceptible but the disease is more severe, particularly among the Negro females. In 39, or 24 per cent of these cases, the findings were incidental and there was no clinical evidence or diagnosis of rheumatic fever.

SYMPTOMS AND SIGNS

When a child presents itself with obvious cardiac or choreic manifestations the diagnosis may be considered established. It is the borderline cases which one must carefully investigate. A history of present or past manifestations and laboratory findings is essential in order to arrive at a correct diagnosis, because there is no single positive test on which one can determine a diagnosis. The recording of easy fatigue, insomnia, restlessness, anorexia, failure to gain, emotionalism, anemia and repeated epistaxis with low grade fever suggests a chronic disease, and rheumatic fever should be considered. Jones[13] in his classifications of rheumatic fever listed various manifestations which he divided into two groups:

A. Major manifestations:
    1. Carditis
    2. Arthralgia, migrating joint arthritis
    3 Chorea
    4. Subcutaneous nodules
    5. Recurrence of rheumatic fever
B. Minor manifestations:
    1. Fever,
    2. Abdominal pains
    3. Precordial pains
    4. Rashes
    5. Epistaxsis
    6. Pulmonary findings
    7. Laboratory findings

Morgan[14] described a prerheumatic stage in children presenting these symptoms: tendency to become easily fatigued, bouts of unexplained fever, listlessness, restlessness, particularly in sleep and failure to gain weight. These signs are more apt to occur during the spring and in damp weather.

Coburn[4] describes three definite phases in rheumatic fever in which he named the manifestations and the duration of each; these are: (1) invasion or onset; (2) quiescence, and (3) active rheumatic fever.

Rheumatic fever may be monocyclic, polycyclic or continuous; Griffith[15] described four clinical types of rheumatic fever: (1) acute fulminating type; (2) subacute polycyclic type; (3) subacute monocyclic type, and (4) subclinical type.

Growing pains have been considered of too little significance. Kohn and Lingg[16] in following cases in which growing and articular pains were manifested found that one third showed definite evidence of rheumatic fever within a year and that within three years 50 per cent showed other manifestations of rheumatic fever. Abdominal pain is a common symptom, also muscular pains in the arms and more frequently the legs. Repeated stumbling when running followed by pain in the legs is significant. Apfel[17] stressed abdominal and muscular pains, particularly in the hamstring, calves and shoulder group.

In an examination of 3,129 cases[16] of rheumatic fever as to the type of onset, polyarthritis was found in 1,262 or 40.3 per cent. Gibson[18] stated that in 60 to 70 per cent of patients showing polyarthritis rheumatic carditis developed. Chorea as a manifestation of rheumatic fever has been shown clearly by Jones and Bland[19] and many others.

Examination and reexamination of the heart are important, while the interpretation of the signs and sounds heard are of equal significance. The child should be stripped to the waist so that the cardiac area may be well investigated. Palpation for thrills and a maximum impulse should be made, and percussion for the size of the heart. Intrinsic and functional murmurs which are unrelated to true cardiac disease are rather common in children. Auscultation should begin at the base in order that the sounds may be timed properly. In the beginning of the disease the soft systolic murmur is heard best over the apex; it is usually transmitted to the axilla. As the disease progresses the middiastolic murmur is heard. This means the involvement of the mitral valve. As the disease progresses one must be mindful of a pericardial involvement. The child should be examined in recumbent, upright and lateral positions and in different phases of respiration, particularly on deep inspiration, in order to rule out cardiorespiratory murmurs or functional murmurs which are not of any significance. When a persistent diastolic murmur is heard regardless of the position or the stage of respiration it invariably means valvular involvement which may be congenital acquired or both.

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[8] Cannon, F. A.: Personal communication to the author, April 28, 1947.

[9] Taran, L. M.: Problems in Management of Rheumatic Disease in Childhood, J. Pediat. 24:62 (Jan.) 1944.

[10] Rheumatic Fever in Children: Its Recognition and Management, New York, Metropolitan Life Insurance Company, p. 3.

[11] Quinn, R. W.: Incidence of Rheumatic Fever and Heart Disease in School Children in Dublin, Ga., with Some Epidemiologic and Sociologic Observations, Am. Heart J. 32:135 (Aug.) 1946.

[12] Yueda, I.: Rheumatic Heart Disease, New Orleans M. & S. J. 98:271 (Dec.) 1945.

[13] Jones, T. D.: Diagnosis of Rheumatic Fever, J. A. M. A. 126:481 (Oct. 21) 1944.

[14] Morgan, S. F.: Heart Disease in Children from the Pediatric Viewpoint, Wisconsin M. J. 44:676 (July) 1945.

[15] Griffith, G. C.: Rheumatic Fever: Its Recognition and Treatment, J. A. M. A. 133:974 (April 5) 1947.

[16] Kohn, A. E., and Lingg, C.: The Natural History of Rheumatic Cardiac Disease: A Statistical Study, J. A. M. A. 121:6 (Jan. 2) 1943.

[17] Apfel, H.: The Rheumatic Child, Arch. Pediat. 62:201 (May) 1945.

[18] Gibson, S.: Rheumatism in Chorea, in Brennemann, J.: Practice of Pediatrics, Hagerstown, Md., W. F. Prior Company, Inc., 1936, vol. 2, chap. 19, p. 8.

[19] Jones, T. D., and Bland, E. F.: Clinical Significance of Chorea as a Manifestation of Rheumatic Fever, J. A. M. A. 105:571 (Aug. 24) 1935.

Gibson[20] emphasized the importance of the presystolic murmur heard over the apex in rheumatic heart disease. The systolic and diastolic murmurs may disappear while this third murmur persists.

It is sometimes necessary to have a stethogram[21] made in order to have the correct interpretation of the murmurs heard.

DIFFERENTIAL DIAGNOSIS IN RHEUMATIC FEVER

There are several diseases which may be confused with this disease; 1. In rheumatoid arthritis, the enlarged spleen and the failure to respond to salicylates are two differentiating features. 2. Septic arthritis is differentiated by aspiration of purulent fluid from the involved joint. 3. In syphilitic hydrarthrosis the involvement of the joint persists and the Wassermann reaction is positive. 4. In sickle cell anemia, the joints fail to respond to salicylates and there is sickling of the red blood cells. 5. In poliomyelitis there is a generalized anesthesia in the beginning, stiffness in the neck and some changes in the spinal fluids. 6. In lupus erythematosus exposed areas are involved, particularly the bridge of the nose; there are leukopenia, microscopic hematuria and shallow ulcers on the buccal mucous membrane. 7. In undulant fever there is specific agglutination or a positive reaction to a cutaneous test, and usually a low sedimentation rate. 8. Ova of parasites are found in stools. 9. In dengue fever, the joints do not swell and there is a poor response to salicylates.

PATHOLOGIC CHANGES

The characteristic Aschoff bodies are usually not seen after the first attack of rheumatic fever, but the mesenchymal tissue is involved. There is an increase of vascular permeability with an involvement of the connective tissue spaces in the myocardiam, with also a change in the connective tissue of the endocardiam and under the serous layers[22]. Necrosis soon follows which is a fibrinoid degeneration of the collagen fibrils; this is followed by a characteristic cellular response. The fibroblastic proliferation is apt to continue and in turn is followed by the appearance of multinucleated cells, so-called Aschoff cells. New fibrous tissue is produced and the valves are likely to be involved. Experimentally[23] bodies simulating Aschoff bodies have been produced by intravenous injection of heterologous serum proteins.

The pathologic changes[24] resolves themselves into chronic inflammatory lesions of the collagen connective tissues involving most often the heart and also the joints, subcutaneous tissues, brain and other organs.

PROGNOSIS

The prognosis will depend on ability to have provided suitable environmental surroundings, a proper diet and probably a change of climate. The early medication by large doses of salicylates and rest in bed. The outlook even under the most favorable circumstances depends on the seriousness of the attack with particular reference to cardiac damage, the grade of chorea and the number of reinfections. May G. Wilson[1] in her review of 673 children with rheumatic fever found that the average duration of life after cardiac decompensation was only 2.8 years, and that after a congestive heart failure chances of surviving beyond the second decade are less than 1 in 3.

TREATMENT

Prompt recognition and early treatment are of the greatest value. There should be careful history taking, culturing of inflamed throats, observation for manifestations of chorea and appropriate treatment in the incipience of the attack. It is probable that a possible disabling illness could be prevented.

Patients with active disease must be given complete bed rest until all signs of decompensation have cleared.

TABLE 2.—*Summary of Management of Patient with Rheumatic Fever*

Examination	Laboratory examinations
History	R.B.C. and W.B.C. differential hgb.
Temperature, pulse and respiration	Sedimentation rates
Weight	Urinalysis; exam. of stool
General appearance and general physical exam.	Search for sickle cells in all Negro patients
Examination of heart with patient in recumbent and sitting positions	Electrocardiogram
	Roentgenogram in A. P., lateral and right oblique
	Vaginal smear
	Agglutination series
	Swab (probably should have routine throat cultures)
Diagnosis	
Recommendations: hospitalization; foster homes; convalescent homes, or to be sent home	
Treatment: rest; exercise; salicylates; sulfadiazine; vitamins and diet	
Date of return visit	

The temperature should have remained normal for sufficient periods and other symptoms abated before exercise is allowed, and the sedimentation rate should be within normal limits. Perhaps the sedimentation rate is the best indicator now available for determining retardation or activity of the disease. Convalescent serums are of doubtful value. Repeated small transfusions have proved useful. Suitable environment which permits ample sunshine is essential.

Diet has not been sufficiently emphasized, as most patients show deficiencies in essential elements; even total calories are often insufficient. Foods procured from natural sources having vitamins, proteins and mineral elements in such proportions as to meet the requirements of nutrition should be given. The element calcium, which is deemed of great importance, should be derived from milk and the green leafy vegetables, and in order that the proteins contain essential amino acids that are not synthesized in the body the source should be meats, whole grain cereals and milk. Vitamin C is necessary to normal nutrition and is best obtained from citrus fruits. If an idiosyncrasy exists to one or more citrus fruits I suggest ascorbic acid.

The climatic change is of questionable value unless the patient is going to remain in the climate that has proved of benefit, because return to a colder climate may lead to recurrence. If the patient is to be returned to a different climate, preventive therapy should be instituted, provided the patient does not become drug (sulfonamide) sensitive.

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20. Gibson, S.: The Clinical Significance of Heart Murmurs in Children, M. Clin. North America 30:35 (Jan.) 1946.

21. Halpern, B. C., and Faber, H. K.: The Cardiopathy of Sickle Cell Anemia and Its Differentiation from Rheumatic Carditis, J. Pediat. 30:289 (March) 1947.

22. Baehr, G., and Pollack, A.: Diffuse Vascular Diseases: I., Mod. Conc. Cardiovasc. Dis., December 1946, vol. 15.

23. Elghammer, H. W.: Symposium on Pediatrics: Rheumatic Fever, Diagnostic Criteria and Rheumatic Heart Disease, M. Clin. North America 30:25 (Jan.) 1946.

24. Robinson, J. J., and Currens, J. H.: Preliminary Observations on Some Children with Rheumatic Heart Disease Transported to a Subtropical Climate, J. Pediat. 28:426 (April) 1946

The exercise of rheumatic patients must be limited and should be under competent medical supervision. At any signs of an interruption in convalescence such as dyspnea, fever or rapid pulse, activity must be stopped and a functional test applied.

Chemotherapy.—Salicylates in large doses are indicated[25] Taran[26] has shown that excellent results are obtained with the drug by mouth; he expressed the belief that the intravenous route is hazardous in children. The blood level should be 35 mg. per cubic centimeter, which can be derived by use of 1½ grains (0.1 Gm.) per pound (0.5 Kg.) of body weight. The benefit of sodium bicarbonate with the salicylates is debatable, and I think that aluminum hydroxide might be substituted for the sodium bicarbonate. Recently it has been suggested that the enteric salicylates produce a toxic effect, but I have not had this experience.

Penicillin has not given good results. Streptomycin has not been used in cases of rheumatic fever so far as I am aware. The sulfonamide drugs are contraindicated in the cases of active disease. Specific therapy such as the application of heat locally is good, but the use of artificial heat in the electric cabinet is of doubtful value.

Digitalis often saves a life in cases of decompensation. When it is used a sufficient amount should be given to digitalize the heart promptly. Sedation in the form of barbiturates or codein is often necessary. Oxygen will frequently tide the patient over from an extreme condition to a less severe one until the heart can pump sufficient oxygen to ventilate the system.

Paracentesis in pericardial effusions may be necessary to relieve cardiac embarrassment. Diuretics are not often employed but when indicated may be helpful.

Gratifying results in reducing the number of recurrent attacks by the use of sulfonamide drugs have been reported.[27] In the administration of the sulfonamide drugs toxic effects such as leukopenia, rashes, nausea and vomiting, icterus and agranulocytosis must be watched for.

INACTIVE RHEUMATIC FEVER

The preventive feature is an essential. This can be largely augmented by three methods: 1. Sulfonamide drugs should be administered in sufficient doses to prevent recurrent infections of the upper respiratory tract of the hemolytic streptococcus A group. Frequently daily doses of 0.5 to 1 Gm. will suffice. Blood sulfonamide levels around 1.0 to 3 mg. per cubic centimeter will often be enough, but this may vary with the individual patient. It is best to continue administration of sulfonamide drugs throughout the year, as exacerbations may occur in the summer, as was shown by Wolf, Rauh and Lyon.[28] The toxic effects have almost been nil, but a patient receiving this drug should have white blood cell counts and determinations of hemoglobin and of sulfonamide levels in the blood every two to four weeks. Urinalysis should be done at frequent intervals. Periodic administration of the drug may cause patients to become sensitive. 2. A suitable diet should be instituted as previously recommended, with sunshine and environmental improvement. 3. The psychosomatic condition must be cared for, as depressions in these children occasionally develop and deter their progress considerably.

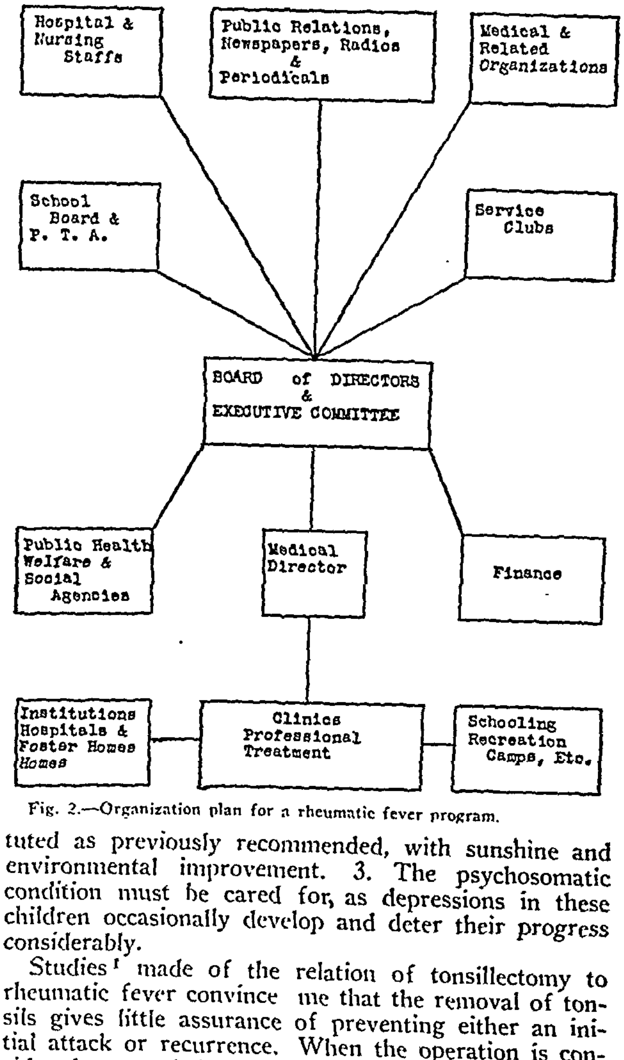
Hospital & Nursing Staffs
Public Relations, Newspapers, Radios & Periodicals
Medical & Related Organizations
School Board & P. T. A.
Service Clubs
BOARD of DIRECTORS & EXECUTIVE COMMITTEE
Public Health Welfare & Social Agencies
Medical Director
Finance
Institutions Hospitals & Foster Homes Homes
Clinics Professional Treatment
Schooling Recreation Camps, Etc.

Fig. 2.—Organization plan for a rheumatic fever program.

Studies[1] made of the relation of tonsillectomy to rheumatic fever convince me that the removal of tonsils gives little assurance of preventing either an initial attack or recurrence. When the operation is considered repeated throat cultures should be made, a urinalysis made and a satisfactory nutritional state established. The operation should not be performed when the disease is active. Should the precautionary measures not be observed operation may result in serious harm.

If the tonsils are diseased and apparently harbor the focus of infection they may be removed at an appropriate time. Small quantities of sulfonamide drug should be given. Kaiser[29] reported that the tonsils act as a storehouse for vitamin C, and they function as a filtering plant in preventing systemic infections.

The use of specific hemolytic streptococcus, mixed or typhoid vaccines has not produced encouraging results, nor have serums or blood from persons who have recovered from rheumatism prevented recurrence.

DETECTION OF CASES

Rheumatic fever should be a reportable disease; until such time it is going to be difficult to distinguish the doubtful from the actual cases of rheumatism.

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[25] Coburn, A. F.: Salicylate Therapy in Rheumatic Fever, Bull. Johns Hopkins Hosp. 73:435 (Dec.) 1943.

[26] Taran, L. M., and Jacobs, M. H.: Salicylate Therapy in Rheumatic Fever in Children, J. Pediat. 27:59 (July) 1945.

[27] Coburn, A. F., and Moore, L. V.: Prophylactic Use of Sulfanilamide in Rheumatic Subjects, M. Clin. North America 24:633 (May) 1940. Stowell, D.D., and Button, W. H.: Observations on Prophylactic Use of Sulfanilamide on Rheumatic Patients, with Report of One Death, J. A. M. A. 117:2164 (Dec. 20) 1941. Hansen, A. E.; Platou, R. V., and Dwan, P. F.: Prolonged Use of Sulfanilamide Compound in Prevention of Rheumatic Recrudescences in Children, Am. J. Dis. Child. 64:963 (Dec.) 1942. Kuttner, A. G., and Reyersb [illegible] rep- tococcal Upper Respiratory Infections an [illegible] in [illegible] hylactic Use of [illegible] esti- [illegible] Chandler, C. A., and Taussig, H. B.: Sulfanila- [illegible] it in Rheumatic Fever, Bull. Johns Hopkins [illegible] Dodge, K. G.; Baldwin, J. S., and Weber, [illegible] of Sulfanilamide in Children with Inactive [illegible] 24:483 (May) 1944.

[illegible] R. L., Rauh, L. W., and Lyon, R. A.: Prevention of Rheumatic Recurrences in Children in the Use of Sulfathiazole and Sulfadiazine, J. Pediat. 27:516 (Dec.) 1945

[29] Kaiser, A. B.: Unpublished data; personal communication to the author, May 20, 1947.

When there is a confirmed diagnosis of rheumatic fever made in a child it is time to investigate the parents and other siblings. This method of examining the whole family is usually called screening, a difficult task. It means careful medical insight and requires much time and tact. Physicians must profit by the setup of the antituberculosis organizations, as they are known to have accomplished great good. Their results have shown a general decline in mortality since the first world war.

Examination of all school children should be compulsory. The voluntary examination of children by Jackson[30] and his group in Iowa disclosed several cases which otherwise might have escaped notice until it was too late to give the child much relief.

The problem of controlling rheumatic fever is one that belongs to the entire community (fig. 2). It is a collective and cooperative one. Armstrong and Wheatley[31] have offered excellent suggestions and plans for the approach with a concrete example as to the management of such a scheme or outline. It is a local community affair which should be popularized under well trained professional leadership. It is the cooperation of numerous persons and organizations, acting through an executive committee, from which satisfactory results will be obtained.

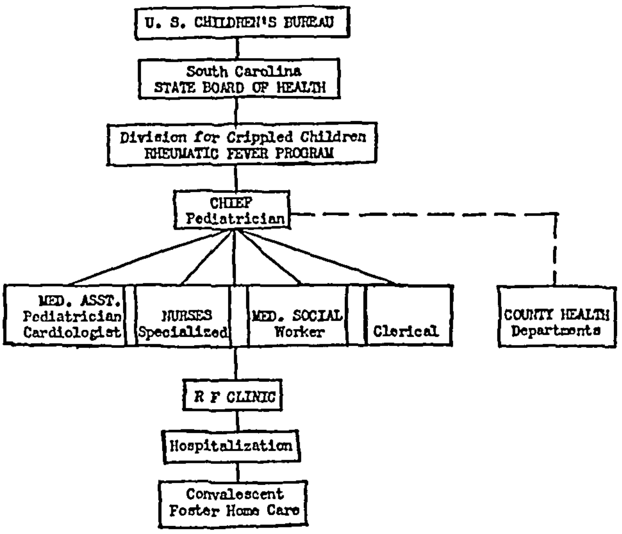
U. S. CHILDREN'S BUREAU
South Carolina STATE BOARD OF HEALTH
Division for Crippled Children RHEUMATIC FEVER PROGRAM
CHIEF Pediatrician
MED. ASST. Pediatrician Cardiologist
NURSES Specialized
MED. SOCIAL Worker
Clerical
COUNTY HEALTH Departments
R F CLINIC
Hospitalization
Convalescent Foster Home Care

Fig. 3.—Organization of the rheumatic fever program in South Carolina, May 1947.

NOTES ON CASES

In a series of 50 patients, of whom 32, or 64 per cent, were white and 18, or 36 per cent, were Negro, the severe cardiac damage was 30 per cent more common among the Negro patients and the decompensation was twice as great.

My associates and I now have under observation 4 patients with active chorea, 3 white girls aged 4 to 12 years and 1 Negro girl aged 10 years. Two of the white girls and the Negro girl are having their second attack. No cardiac or valvular disease has been observed in the white girls, while the Negro girl shows definite disease of the mitral valves.

The results of the cardiograms have not been entirely satisfactory, as there have been only 4 patients among the 15 who have had definite rheumatic carditis who show prolonged intervals and irregularities. Our cardiologist examines each patient and thinks that we should use three chest leads instead of one to get a true picture; however, it demonstrates to me that though there is valvular involvement the myocardium and conductive mechanism have not been affected; that signifies that attacks in this climate are less severe.

The organization of our rheumatic fever clinic has been too recent to give any statistics, but it is manifest that cases of rheumatic fever exist in South Carolina, which was demonstrated by Beach and Ravenel[32] in 1944. I reported 30 cases in the same year.[33]

SUMMARY

As a result of improved diagnostic information and widespread interest rheumatic fever has been found to be more prevalent than formerly suspected. It has been shown that heredity is an important factor. Great emphasis is placed on nutrition. In no other disease is the satisfaction of normal nutritional requirements more essential as a means of restoring health. Environmental and hygienic surroundings occupy an important position in the restoration of health.

The salicylates should be administered within the limits of tolerance in the cases of active rheumatism. The measures suggested for disabling manifestations are of primary importance. It is suggested that the administration of sodium bicarbonate with the salicylates be abandoned and that aluminum hydroxide be substituted. The sulfonamide compounds have a definite field of usefulness in the prevention of recurrent rheumatic fever.

My observation is that rheumatic fever is not so common among Negroes as among whites but more severe.

ABSTRACT OF DISCUSSION

Dr. Ira Gore, Washington, D. C.: My experience has been limited to work in the etiology and pathology of this condition with respect to which Swift's views, regarding the importance of streptococcic infections and hypersensitivity to them, have been widely accepted. Recent bacteriologic work, though, has shown that steptococci are not a homogeneous species. There are eleven groups, of which group A is the one of etiologic significance. Within group A there are forty subtypes, much as there are subtypes among pneumococci. During the recent war, a commission studying hemolytic streptococcus diseases reaffirmed the relation of group A streptococci to the causation of rheumatic fever. They indicated that the disease never occurred in the absence of a previous infection by this organism. Several types were found capable of producing the rheumatic fever state with no one type predominating. The importance of reinfection by other types of group A organisms was stressed. Moreover, such a reinfection, provable by laboratory means, could be rather insidious, without clinical manifestations. In a significant number of their cases, abnormal electrocardiograms and elevated sedimentation rates were found during the interval preceding the onset of rheumatic fever; there was no true latent period. In another group of 185 carefully studied cases of streptococcus A infections of the respiratory tract, 2 exhibited similar abnormalities of the electrocardiogram, and sedimentation rate, but these manifestations were not accompanied by arthritis. The commission argued the essential identity of the two groups, the one group with arthritis and the other group without arthritis. But here caution and further investigation are indicated. Distinct anatomic differences are present between the cardiac changes which are frequent in scarlet fever and those found in rheumatic fever, and yet these cases of streptococcus A infection, too, are associated with abnormalities in the electrocardiogram and in the sedimentation rate. Whether they provide the anatomic background on which rheumatic fever develops, one cannot say, but certainly such changes are much more frequent than rheumatic fever following scarlet fever. Furthermore, the anatomic changes in 35 fatal cases of myocarditis following acute tonsillitis and nasopharyngitis are quite at variance with those of rheumatic fever. Though these cases lack the careful bacteriologic studies which would identify them unequivocably with those studied by the streptococcus commission, on a frequency basis alone there can be little doubt that many of them should be included.

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[30] Jackson, R. L.: Heart Disease in Children in a Rural Iowa County, Particularly in Relation to Rheumatic Fever, J. Pediat. 29:647 (Nov.) 1946.

[31] Armstrong, D. B., and Wheatley, G. M.: Community Organization for the Control of Rheumatic Fever, New York State J. Med. 45:169 (Jan. 15) 1945.

[32] Beach, M. W., and Ravenel, B. O.: Rheumatic Fever, J. South Carolina M. A. 40:199 (Oct.) 1944.

[33] Weston, W., Jr.: Rheumatic Fever, South. M. J. 38:189 (March) 1945.

Dr. Stanley Gibson, Chicago: Dr. Weston called attention to the major and minor phenomena of rheumatic fever as outlined by Dr. Duckett-Jones, and I am sure we all agree with him. However, it is not always easy to be sure whether we have even one of those major phenomena. Take, first of all, polyarthritis In the typical case of rheumatic polyarthritis, in which several joints are involved, with redness and tenderness of the joints, fever and a prompt response to salicylates, one has little doubt of the diagnosis of rheumatic polyarthritis, and I think the diagnosis can be made on that one manifestation alone However, there are many cases that are less clear; for example, the child who has some nondescript pains, the mother being not quite sure whether they are in the joints or in the muscles, oftentimes only in the legs rather than in the arms and the legs. Those cases require careful study, and one should be careful about making a diagnosis of rheumatic polyarthritis on such a basis. In proportion as the pains are in the muscles rather than the joints, and when they involve only the legs rather than the arms and legs, I think one should be still more suspicious of a diagnosis of rheumatic fever. Ordinarily, there is little doubt about the diagnosis of chorea, though one sees many jittery children that are suspected of having chorea and sometimes are given this diagnosis on insufficient grounds. I like to think of Sydenham's chorea as disease which has a definite beginning, a continuance of weeks or months and a definite ending, so that at the end of the time the child is again well so far as the nervous system is concerned. I would also like to know that along with the incoordination of movement the child also has an emotional instability which is an integral part of chorea. Rheumatic nodules, another major manifestation of rheumatic fever, seldom help diagnosis, because the child who has nodules has a chronic and usually severe rheumatic infection, and the diagnosis does not depend ordinarily on the finding of a rheumatic nodule. They are of prognostic rather than of diagnostic importance. In regard to the heart, disease in which is the fourth major manifestation of rheumatic fever, I think again there are pitfalls. Too often, rheumatic heart disease is diagnosed on the presence of a murmur. If one keeps in mind the pathologic changes, it is only certain sorts of murmurs that are indicative of rheumatic heart disease. The two valves most severely and commonly involved are the mitral valve and the aortic valve. The mitral valve gives the systolic apex in the beginning; later a middiastolic and perhaps later a presystolic murmur. Those murmurs are at the apex, and that should be emphasized. As regards involvement of the aortic valve, the diastolic murmur of aortic insufficiency is distinctive once it is well heard, and unless one can hear these typical murmurs, I do not believe one should diagnose rheumatic heart disease, at least on the basis of auscultation.

Dr. Rachel Ash, Philadelphia: Dr. Weston emphasized the seriousness of rheumatic infection in childhood. I should like to illustrate this point by showing what happened to a group of 536 rheumatic children in Philadelphia. Ten years after onset of the disease, 25 per cent have already died of rheumatic infection. Moreover, the majority of persons presenting no functional incapacity are those who showed no clinical evidence of heart disease at the time of the initial attack. However, the incidence of carditis and of deaths was greater among those children taken ill during the period 1922 to 1926 than during the period 1927 to 1931, and least of all among those taken ill between 1932 and 1936. The decrease in carditis has not been due to any variation in the method of using salicylates. Throughout this period, it has been the custom of my associates and me to administer large doses of salicylates at the beginning of the disease, but not to continue their use in the absence of fever or articular pains. About ten years ago, we did try long-continued use of salicylates in about 10 children on our convalescent ward, and in that group, as in repeated isolated instances throughout the years, we have witnessed the development of carditis and of recurrences while large doses of salicylates were being administered. Whereas in the early part of this period, the majority of the children were returned home shortly after the disappearance of acute symptoms, these children are now kept in the hospital for an average period of three months or longer. Whether the lessening of severity of disease during this period is partly due to the favorable influence of prolonged bed rest at the onset of the infection or is entirely due to a spontaneous change in the character of the disease can be subject to speculation only, but I think that one should give prolonged bed rest the benefit of the doubt and not be tempted to try the recently instituted army treatment of early ambulation. The problem of controlling rheumatic fever is definitely one that belongs to the entire community. In establishing a community program, however, the education of the physician and the establishment of provisions for the care of the rheumatic child should precede publicity campaigns directed to the lay public. Such publicity campaigns do harm when they present a description of symptoms, often minor and not specifically rheumatic, which arouse neurotic fears. Because of publicity campaigns which have emphasized the most serious aspects of rheumatic infection, the diagnosis of this disease carries an emotional connotation which produces a state of panic in the minds of parents. It should not be made lightly on the basis of inadequate evidence.

Dr. Mark P. Schultz, Bethesda, Md.: Insufficient attention is, perhaps, directed to the importance of growing pains. The differentiation of pains, growing pains, as they are called, into rheumatic and nonrheumatic varieties seems most important, and it seems to me that there are some criteria which may be of help; namely, the increased severity of such pains when they are of nonrheumatic origin. It has often been observed that pains in the extremities which have later proved not to be rheumatic are severe enough to cause children to cry, whereas actual pain of such severity on a rheumatic basis is rare. Also, the rheumatic pains are more apt to occur during the day or during periods of physical activity, whereas most of those of nonrheumatic origin are more in evidence when the patient is at rest. The rheumatic pains are also more apt to be articular or juxta-articular rather than involving muscular structures. Another point might be mentioned. We physicians take an extremely optimistic view of the possibility that the agents which we use in rheumatic fever are actually curative. This should particularly be borne in mind with respect to the salicylates. When the antipyretics were introduced, we were most optimistic about their possible curative effects in rheumatic infection, but during the years, however, despite the use of antipyretics, including sodium salicylate in heroic doses, the conclusion was rather universally accepted that such drugs were purely symptomatic in their effect in rheumatic fever. The introduction, about 1935, of the administration of salicylates by the intravenous route has raised this question again. I feel, on the basis of my own observations, that there is no reason to alter the conclusion reached years ago, that their effect is essentially that of affording relief of symptoms. The data which have been cited as indicating a contrary conclusion were in large part collected from military personnel of an age not particularly susceptible to the progress of cardiac lesions. Dr. Ash mentioned the contribution of Drs. Robertson and Schmidt, who tried the experiment of not restricting physical activity in rheumatic patients. They found that patients admitted with rheumatic fever, when permitted complete physical activity at their own volition from the time of their admission until their discharge except during the periods of cardiac decompensation, recovered more promptly on the whole than those whose activities were curtailed. They pointed out that strict avoidance of restriction of activity eliminates the establishment of cardiac neuroses which are not to be eliminated in children when so much attention is paid to restriction of their activities. I think this raises a serious question, whether in the past we have been too extreme in the restriction of activity of rheumatic children.

Dr. William Weston Jr., Columbia, S. C.: I tried to get some data from reports in the occupied territories, and Dr. Paul White, who is permanent head of investigation in Czechoslovakia, wrote me a letter that he did not think that the incidence of rheumatic fever or carditis had changed much, but there were a great many cases in camps. The psychiatric condition which develops, which Dr. Schultz has just mentioned, is important, and when there is any doubt in the diagnosis of rheumatic fever, it behooves pediatricians to call an internist who is trained in cardiology to substantiate it. I did not mention the treatment in regard to penicillin but I noticed a good many—Dr. Keefer men-a cast and the use of crutches was begun. The use of cast and crutches was continued for one year. This patient also had 6 Gm. daily of "promizole" (4,2′-diaminophenyl-5′-thiazolylsulfone) for the first eight months of this year. No benefit was detectable when she was reexamined. The sedimentation rate, which had been 30 mm. per hour (Westergren method) at the time of biopsy, was 45 mm. per hour one year later. At this time streptomycin treatment was begun. The patient received 0.5 to 1 Gm. a day by intramuscular injection in divided doses every four hours. This dosage was continued for eighty-four days until a total dose of 58 Gm. of streptomycin had been given (fig. 1*a*). Within two and a half months the sedimentation rate dropped to 7 mm. per hour. When the patient was last examined, eighteen months after streptomycin therapy had been stopped, the sedimentation rate was 4 mm. per hour. Six months after administration of streptomycin had been begun (fig. 1*b*), swelling and soreness had completely subsided and full motion of the knee had returned. Six months after streptomycin therapy had been stopped, the patient was taken off crutches and allowed full use of the knee (fig. 1*c*). She has been jumping, running and playing without restraint for one year (eighteen months since streptomycin therapy was stopped), with full use of her left knee and no recurrence of pain, swelling or other symptoms. Our impression is that this was a favorable response to streptomycin.

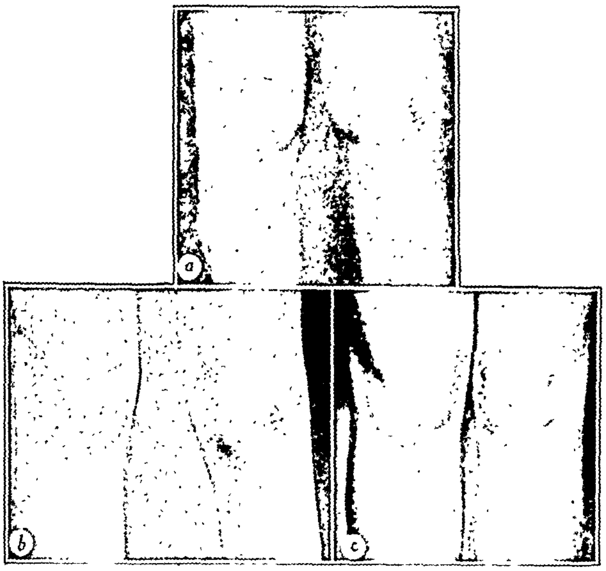

Fig. 1.—(*a*) Swollen, boggy-appearing left knee one year after biopsy and after one year in a cast without weight bearing. (*b*) Three months after cessation of streptomycin therapy. Complete subsidence of soreness and swelling and a return of a full range of motion. (*c*) Six months after cessation of streptomycin therapy. Continued normal appearance and function of left knee. (Reproduced from motion picture film.)

Case 2.—A white man aged 24 years had synovial tuberculosis of the right knee, demonstrated by histologic examination of the tissue from the knee on Dec. 14, 1946. There was no roentgenologic evidence of involvement of bone. A roentgenogram of the thorax revealed minimal active tuberculosis of both apexes. Specimens of sputum were positive for acid-fast bacilli before streptomycin was given, and became consistently negative within a few weeks after the start of therapy. The right knee had been swollen and painful for one year and the motion was limited between 90 degrees and 165 degress (fig. 2*a*). Administration of streptomycin (2 Gm. intramuscularly daily in divided doses every four hours) was started on Dec. 25, 1946, and was continued for ninety-one days for a total of 182 Gm. of streptomycin. In addition, once weekly for thirteen weeks 0.3 Gm. of streptomycin in 6 cc. of isotonic solution of sodium chloride was injected into the joint. This invariably provoked some local soreness, swelling and increased heat, which gradually subsided in two to three days. Strict rest in bed was carried out for three months, although the patient was allowed to move the knee about freely. Within one month of the start of streptomycin therapy (fig. 2*b*) the swelling and pain had almost completely subsided and there was nearly a complete range of motion. Three months from the start of streptomycin therapy, a full range of motion had returned. The patient has been using the knee for six months since streptomycin therapy was stopped with no return of swelling, pain or limited motion. The pulmonary lesion is stabilized. Our conclusion is that this was a favorable response to streptomycin.

Case 3.—A Negro aged 22 years had advanced destructive changes of all bony surfaces of the right knee, as revealed by roentgenographic examination. The knee was swollen, tender, with considerable increase in temperature and painful on the slightest movement. A roentgenogram of the thorax revealed bilateral far advanced tuberculosis, largely of the exudative type with positive sputum. Because of the extreme destruction of the knee, streptomycin therapy was started in preparation for arthrodesis. Histologic examination of the tissue, culture and guinea pigs inoculated with material from the knee were all indicative of tuberculosis. Administration of streptomycin (2 Gm. intramuscularly daily in divided doses every four hours) was started and continued for one hundred and twenty-two days for a total of 244 Gm. of streptomycin. In addition, 0.4 Gm. of streptomycin was instilled into the joint at weekly intervals for fifteen weeks. At the end of this time, the knee was definitely improved. Swelling had subsided considerably. There was no pain with motion, and the patient walked without complaint. Arthrodesis was still advised because of the pronounced destruction of the joint, the economic background of the patient and the distinctly improved but still active bilateral pulmonary disease. Cultures on three occasions and five pairs of guinea pigs inoculated at approximately weekly intervals with the material from the knee were positive for tuberculosis for the first seventy-seven days of streptomycin therapy. After this, two cultures and six guinea pigs inoculated with the material from the knee two months apart were negative for tuberculosis.

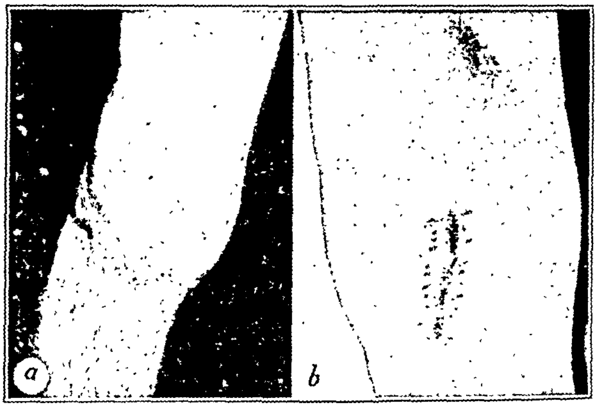

Fig. 2.—(*a*) Swollen, boggy, painful knee for past year. (*b*) One month after biopsy and start of administration of streptomycin. Pronounced reduction in swelling and pain and increase in range of motion.

The patient went home for one month and then returned for arthrodesis of the knee on May 24, 1947, and for a second course of streptomycin (0.5 Gm. intramuscularly every twelve hours for sixty-eight days). The incision healed by primary intention and ankylosis seemed solid within four months. The patient was fitted with a stiff leg brace, which he now wears. Remarkable clearing of the roentgenogram of the thorax occurred under streptomycin therapy and sputum became negative for acid-fast bacilli. Our conclusion is that this was a favorable response to streptomycin in that the thoracic lesions cleared considerably and streptomycin proved a valuable aid to operation on the knee.

Case 4.—A Negro woman aged 33 years has destructive tuberculosis of the right knee, which was demonstrated by histologic examination of tissue taken for biopsy at the time of arthrodesis on Jan. 21, 1947. She had two courses of streptomycin therapy, each of three weeks' duration. The first course of streptomycin (1.5 Gm. intramuscularly daily in divided doses every four hours) was begun at the time of arthrodesis. Sinuses developed after arthrodesis and have continued to drain to the time of writing. The second three week course of streptomycin

(1 Gm. intramuscularly every twelve hours) was given two months after the first at the time of the change of the cast. Our impression is that the patient derived no benefit. Treatment in this case was prophylactic.

CASE 5.—A white woman aged 21 years had progressive tuberculosis of the spinal column with a paravertebral abscess. A smear of the sinus of the back was positive for acid-fast bacilli in 1944. A roentgenogram of the thorax revealed a Ghon complex on the left side. In 1934 spinal fusion had been done for destructive arthritis of the bodies of the first to the fourth lumbar vertebrae. In 1945 a second spinal fusion was done for progressive involvement of the bodies of the eighth to the eleventh thoracic vertebrae with a paravertebral abscess The patient continued to have thoracic spinal pain. One year after the second spinal fusion the patient received streptomycin for seventy-seven days (1.6 Gm. intramuscularly daily in divided doses every twelve hours) for a total of 123 Gm The patient has continued to have thoracic spinal pain Our impression was that streptomycin had not produced benefit in a late and extensive lesion.

CASE 6.—A white girl aged 17 years had progressive destructive arthritis of the bodies of the ninth, tenth and eleventh thoracic vertebrae. A smear from the sinus of the back was positive for acid-fast bacilli. The patient had three spinal fusions—in 1940, in 1943 and April 5, 1947. Streptomycin (1 to 2 Gm. intramuscularly daily in divided doses every four hours) was given for one hundred and sixty-two days beginning one month before the last spinal fusion for a total of 211 Gm. A draining sinus at the operative site has persisted to date. Our impression was that streptomycin did not produce benefit in this case.

CASE 7.—A white man aged 59 years had tuberculosis of the bodies of the tenth, eleventh and twelfth thoracic vertebrae. Roentgenograms of the thorax were negative for tuberculosis. Cultures of postoperative sinuses were positive for tubercle bacilli. In 1936 the patient underwent thoracotomy for what was believed to be an empyema of the left side of the thorax. This turned out to be a paravertebral abscess from tuberculosis of the bodies of the tenth, eleventh and twelfth thoracic vertebrae. Multiple sinuses formed postoperatively and drained for eleven years. The patient was totally disabled. Administration of streptomycin (0.25 Gm. intramuscularly every six hours) was started on March 28, 1947, and was continued for ninety-seven days and a total of 97 Gm. of streptomycin. Within seventeen days all sinuses healed; they have remained healed for six months. Spinal fusion was done on July 17. Healing of the incision was normal, and convalescence to the time of writing has been uneventful. Our impression is that this was a favorable response to streptomycin.

CASE 8.—A white woman aged 45 years had tuberculosis of the bodies of the ninth and tenth thoracic vertebrae. Roentgenograms of the thorax were negative for tuberculosis. Culture of draining sinuses of the right femoral region of three and a half years' duration was positive for tubercle bacilli. Sinuses developed after aspiration of a psoas abscess pointing in the femoral triangle. A spinal fusion on Jan. 30, 1946, had been unsuccessful, as the grafts absorbed, the sinuses continued to drain and the destructive process in the vertebral bodies progressed. Administration of streptomycin (0.5 Gm. intramuscularly every six hours) was started on Sept. 12, 1946, and continued for one hundred and sixty-six days. Treatment was stopped for two months after one week of administration of streptomycin because of a rash on the legs and arms, chills, fever, nausea and vomiting. Desensitization doses of streptomycin were restarted after one week until 2 Gm. daily was being given. This was continued until completion of the treatment at the end of one hundred and sixty-six days without event. Three months after the start of the streptomycin therapy the sinuses healed; they have remained healed for five months. On April 10, 1947, a second spinal fusion was done. Postoperative convalescence has been uneventful to date. Our impression is that this was a favorable response to streptomycin.

CASE 9.—A white girl aged 13 years had tuberculosis of the right ankle involving the subastragalar joint, later involving the tibioastragalar joint, and tuberculosis of the left elbow. A roentgenogram of the thorax revealed calcified hilar nodes and a calcified lesion in the upper lobe of the left lung. The patient was first seen at the clinic in 1944 because of cervical adenitis present since 1939 and an axillary adenopathy present since 1941, along with intermittent swelling and soreness of the right ankle and the left elbow. She was seen again July 14, 1945, at which time triple arthrodesis was done on the right ankle for destructive arthritis. Tissue removed at examination was positive by histologic examination and culture for tuberculosis. Healing of the incision and ankylosis of the region of triple arthrodesis were uneventful. On May 2, 1946, arthrodesis of the left elbow was done for progressive destructive arthritis. Healing and postoperative course were uneventful. On Aug. 7, 1946, roentgenographic examination revealed a spread of the tuberculous process into the tibioastragalar joint with pain and swelling, for which arthrodesis of this joint was done. One week prior to this, administration of streptomycin (1.2 Gm. intramuscularly daily in divided doses every four hours) had been started. This was continued for one hundred and three days for a total of 124 Gm. Convalescence was uneventful. Examination March 10, 1947, revealed a solid fusion of the ankle joint on which arthrodesis had been done. Eight months after administration of streptomycin was stopped the patient is clinically and roentgenographically cured. She has no pain or other symptom from the ankle or elbow. Our impression is that this was prophylactic treatment. No conclusions can be drawn as to benefit of streptomycin, as two previous arthrodeses healed uneventfully without benefit of streptomycin; however, clinically the patient gained weight and appears much improved.

CASE 10.—A white woman aged 28 years had tuberculous tenosynovitis of the right ankle, tuberculosis of the right sternoclavicular joint with a draining sinus and pulmonary tuberculosis with tuberculous empyema, a bronchopleurocutaneous fistula and multiple draining sinuses of the thorax. Tuberculosis was proved in 1942 by histologic examination of tissue from the thorax and cultures from the sinuses. The diagnosis of tuberculous tenosynovitis must be considered presumptive, as no biopsy, culture or studies on guinea pigs were carried out on the swollen soft tissues about the ankle. Roentgenograms of the ankle were negative for osseous changes, Thoracoplasty and an unroofing operation were done in 1942 to obliterate and unroof the empyema cavity and to stop the draining sinuses. The sinuses continued to drain. The patient received "promizole" orally (6 to 10 Gm. daily) and "promizole" jelly locally from November 1943, through March 1944, without benefit. A cold abscess developed under the right breast during this period of treatment. Swelling over the lateral aspect of the right ankle, pain and limited motion continued. This patient had two courses of treatment with streptomycin. The first was begun Dec. 29, 1944, and continued for twenty-one days, 1.2 Gm. being given intramuscularly daily in divided doses every four hours for a total of 25 Gm. of streptomycin. At this time no more streptomycin was available. Administration of penicillin (100,000 to 200,000 units intramuscularly daily in divided doses every three hours) was started and continued for twenty-seven days. By this time the sinuses were almost completely closed and the patient went home.

The patient returned for further treatment Feb. 8, 1946, at which time she was considerably improved—only a small amount of drainage from the thoracoplasty scar remained. The bronchopleurocutaneous fistula was still present. Her right ankle was asymptomatic although still slightly swollen. Administration of streptomycin (1.2 Gm. intramuscularly daily in divided doses every four hours) was started and continued for sixty-four days for a total of 77 Gm. Nebulization of streptomycin mixed with penicillin (0.5 Gm. of streptomycin and 200,000 units of penicillin in 30 cc. of sodium chloride solution daily) was also started at the same time. Nebulization was stopped after seven days because it produced paroxysms of coughing. At this time the patient was unable to blow air through the bronchopleurocutaneous fistula for the first time in four years! The empyematic space was almost entirely obliterated by the sixty-fourth day and the patient was dismissed. She returned six months later, at which time the empyematic space was entirely healed. She made no complaints about the ankle. One year since administration of streptomycin was stopped the patient's thorax remains entirely healed and the ankle appears normal. Our impression is that this was a favorable response to streptomycin.

Case 11.—A white man aged 68 years had synovial tuberculosis of the right ankle demonstrated histologically by biopsy of swollen tissue over the tip of the lateral malleolus. The ankle had been swollen and painful for six or seven months. A roentgenogram of the ankle revealed no changes of bone. A roentgenogram of the thorax showed no abnormality After biopsy, the ankle drained for four months. Streptomycin therapy (1 Gm. intramuscularly daily in divided doses every six hours) was started and continued for one hundred and five days and a total of 105 Gm. of streptomycin. Swelling and pain in the ankle diminished during streptomycin therapy. The patient is still under treatment. Our impression is that improvement of the patient under treatment is noted.

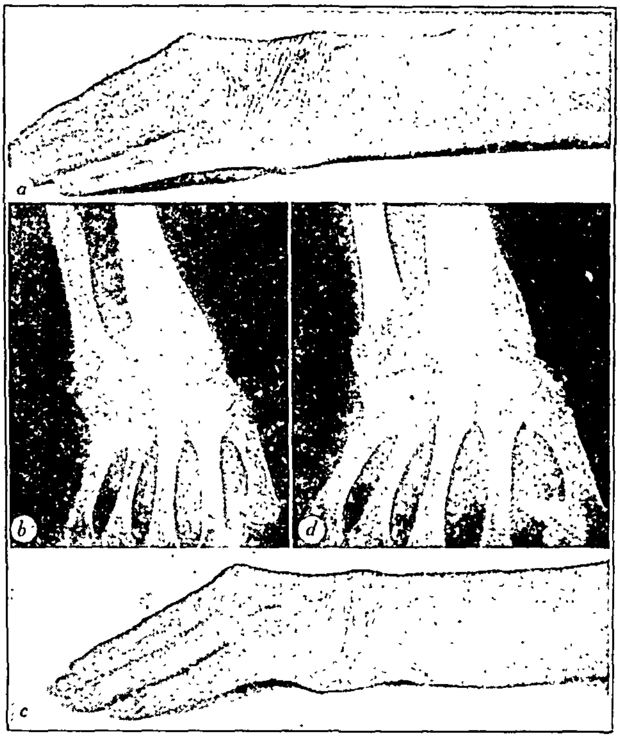

Fig. 3.—(*a*) Painful swelling of wrist of fourteen years' duration (*b*) Appearance before start of administration of streptomycin. Destruction of wrist joint, carpal bones and proximal ends of metacarpal bones. (*c*) Nine months after cessation of streptomycin therapy Swelling has subsided. (*d*) Appearance nine months after cessation of streptomycin therapy Recalcification evident

Case 12.—A white man aged 39 years had tuberculosis of the right wrist proved by histologic examination, culture and inoculation of guinea pigs. He had a swollen, painful wrist of sixteen years' duration Roentgenograms of the wrist revealed advanced destruction of all carpal bones and articular surfaces of the lower end of the ulna and the radius. A roentgenogram of the thorax revealed minimal inactive tuberculosis in the apex of the right lung. Streptomycin therapy (1 2 Gm. intramuscularly daily in divided doses every four hours) was started and continued for sixty-six days and a total of 72 Gm. A cast was applied to the wrist for four months. Two days after streptomycin therapy had been stopped, a sinus developed on the ulnar side of the wrist; this drained for several months. Swelling and pain subsided considerably during treatment. The roentgenogram revealed considerable recalcification of the involved bones of the wrist. Eighteen months after administration of streptomycin had been stopped the patient reported (by letter) that the wrist is "still swollen some" but not painful and there has been no drainage. Our impression is that this was a fair response to streptomycin.

Case 13.—A white woman aged 58 years had a painful swollen wrist of fourteen years' duration (fig. 3*a*). Tuberculosis was proved by inoculation into guinea pigs of material from the wrist. A roentgenogram of the wrist revealed pronounced destruction of the lower 1 inch (2.5 cm.) of the radius and the ulna, the carpal bones and the proximal ends of the metacarpal bones (fig. 3*b*). A draining sinus had been present for four months. A roentgenogram of the thorax revealed inactive fibrous and calcified tuberculosis of both apexes. Administration of streptomycin (1.2 Gm. daily intramuscularly in divided doses every four hours) was started Jan. 26, 1946, and continued for fifty-seven days and for a total of 61 Gm. A cast was applied for four months. The sinus continued to drain for six months after administration of streptomycin had been stopped. Nine months after cessation of streptomycin therapy the wrist was no longer swollen (fig. 3*c*) and roentgenograms revealed recalcification of the carpal bones (fig. 3*d*). Eighteen months after administration of streptomycin had been stopped the patient reported that there was a little swelling and pain at times. Our impression is that there was a favorable response to streptomycin despite the short duration of treatment.

Case 14.—A white girl aged 6 years had destructive arthritis of the carpal bones of the right wrist with swelling and pain of six months' duration. Histologic examination of tissue taken from the wrist for biopsy was positive for tuberculosis and a smear was positive for acid-fast bacilli. A sinus persisted for four months after biopsy. A roentgenogram of the thorax did not reveal tuberculosis. Administration of streptomycin (about 0.5 Gm. intramuscularly every twelve hours) was started Sept. 10, 1946, two weeks after biopsy, and was continued for eighty-five days and a total dose of 80 Gm. of streptomycin. A cast was applied to the forearm and hand and maintained until eight months after administration of streptomycin had been stopped. At this time the wrist was clinically healed with no redness or swelling. A roentgenogram revealed recalcification of the carpal bones. Our impression is that this was a favorable response to streptomycin.

Case 15.—A white man aged 58 years had draining sinuses of both shoulders of several years' duration. A roentgenogram of the thorax revealed far advanced bilateral pulmonary tuberculosis. Smears of sinus material and sputum were positive for acid-fast bacilli, and cultures of the sputum were positive for tuberculosis. Administration of streptomycin (0.25 Gm. intramuscularly every six hours) was started Nov. 2, 1946, and continued for one hundred and twenty days for a total of 120 Gm. Within one month of the start of administration of streptomycin, both sinuses of the shoulders closed; they have remained so five months after cessation of streptomycin therapy. Two months and four months after streptomycin therapy had been stopped, however, sternal and scapular abscesses developed, and drainage has persisted to the time of writing. Streptomycin therapy has not been resumed. The patient's pulmonary status is unchanged. Our impression is that this was a favorable response to streptomycin in the shoulders.

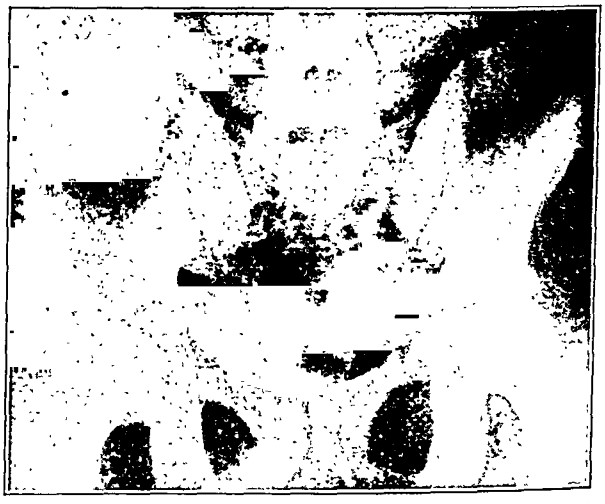

Fig. 4.—Appearance of tuberculous lesion of the body of fourth lumbar vertebra and iliac bone.

CASE 16.—A white man aged 25 years had tuberculosis of the fourth lumbar vertebra and the right ilium (fig. 4) proved by inoculations into guinea pigs of pus from a psoas abscess in the right femoral triangle. Roentgenograms of the thorax revealed no abnormality. The patient had complained of pain in the right iliac region for two years. Roentgenograms of the lumbar portion of the spinal column revealed questionable narrowing of the fourth lumbar interspace. Biopsy of the iliac lesion was advised and carried out. Considerable purulent material welled from the incision when the abdominal muscles were stripped from the medial side of the ilium in obtaining a specimen for this biopsy. Cultures and inoculations into guinea pigs of this material were positive for tuberculosis. Administration of streptomycin (0.5 Gm. intramuscularly every twelve hours) was started Aug. 14, 1947, and continued for one hundred and twenty days for a total of 120 Gm. of streptomycin. Drainage had diminished to a drop or two in a day after two months of streptomycin therapy. The patient was still under treatment at the time of writing and the drainage has remained the same. The lesion in the right ilium has remained unchanged in appearance by roentgenographic examination. There has been some progression of the disease in the fourth lumbar interspace with minimal destruction of the right side of the inferior portion of the body of the fourth lumbar vertebra. Our impression is that the patient improved under treatment.

SUMMARY

Sixteen patients with tuberculosis of bones and joints have been treated with streptomycin. Three patients had involvement of multiple joints. Nineteen ioints were involved. Sinuses were present in 4 cases before streptomycin therapy was begun. The average duration of treatment was one hundred and twelve days. The average total dose of streptomycin (0.75 to 2 Gm. daily) was 134 Gm. Mild to moderate toxic symptoms were found in 9 of 16 patients. In only 1 patient were symptoms severe enough to warrant discontinuing administration of the drug.

Response to streptomycin was considered favorable in 9 cases and fair in 1 case; there was no benefit in 4 cases, and the therapy was too recent to evaluate in 2 cases.

CONCLUSIONS

Considering the great difficulty which has been encountered in the treatment of similar conditions in the past, we are encouraged by this preliminary survey.

It is felt that 1 Gm. of streptomycin daily for ninety days is a satisfactory course of treatment in the light of present knowledge.

Radioactive Isotopes and the Microscope.--From the chain reacting piles of the Atomic Energy Commission have come radioactive isotopes which have been termed the most important tool for research in biology and medicine since the introduction of the microscope....However, it appears that in this field the most important contributions of radioactive isotopes will be in elucidating our understanding of the more fundamental mechanisms of diseases. At present there is no evidence that nuclear energy offers a cancer cure, and such predictions as have promised this are totally unrealistic and inaccurate. It appears that knowledge may be gained on the more fundamental mechanisms by which cancer develops, and such knowledge could lead to improved methods of cancer treatment. To explore further the role that nuclear energy may play in increasing our knowledge of cancer, the Atomic Energy Commission had launched a comprehensive program in this field.--Dr. John Z. Bowers, U.S. Atomic Energy Commission, From an address read before the National Convention of the Institute of Radio Engineers, New York, March 23, 1948.

CHOLANGIOGRAPHY IN STONE STRICTURE AND OPERATIVE INJURY OF BILIARY DUCTS

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A review of our experience with cholangiography in 90 consecutive patients who have had exploration of the common duct for stone, stricture or stenosis of the biliary tract emphasizes that: 1. Cholangiography is an accurate means of determining the presence or absence of disease in the biliary ducts. 2. Roentgen visualization of the biliary tree following the injection of an opaque medium is a simple diagnostic procedure. 3. More positive information can be obtained by cholangiography than by surgical exploration of the biliary ducts. 4. It is essential and advantageous to employ cholangiography at the time of operation. By this procedure lesions not evident to the surgeon may be demonstrated and reoperation avoided. 5. Postoperative cholangiograms are necessary to confirm the absence of disease in the duct system before the T tube is removed.

INDICATIONS FOR CHOLANGIOGRAPHY

The indications for cholangiography at the time of operation are essentially the same as those proposed by Lahey[1] and others for open exploration of the biliary tract. If any of the following conditions apply, it is believed that the ducts should be explored, and hence cholangiography is indicated: (1) if the patient is jaundiced at the time of operation or if there is a history of jaundice in the past; (2) if multiple small stones are found in the gallbladder at operation; (3) if the ducts are dilated or obviously diseased; (4) if a stone in the duct is suspected on palpation; (5) if a small fibrotic gallbladder is discovered; (6) if bile aspirated from the duct is muddy, or (7) if the liver is cirrhotic.

As Lahey[2] has indicated, a negative history of jaundice is not a trustworthy criterion for avoiding exploration of the common duct. There was no history of jaundice, and none was present at the time of operation in 39 per cent of a large series of his patients who later proved to have stones in the common or the hepatic duct.

In a minority of patients the indications for open exploration are not so clearcut, and the surgeon hesitates to subject his patient to the added risk of opening the duct system. That choledochostomy is not undertaken without added risk has been pointed out by Lahey (1932),[1] who estimated that the mortality in simple cholecystectomy was about 4 per cent, whereas the mortality jumped to 13 per cent if, in addition, the common duct was opened. Cole (1939)[3] using figures assembled from various sources, estimated that the over-all mortality in cholecystectomy was 6.5 per cent, but if choledochostomy was added the operative mortality rose to 10 per cent. Both of these estimates indi-

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From the Cleveland Clinic and the Frank E. Bunts Educational Institute.

Read before the Section on Radiology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

[1] Lahey, F. H.: Common and Hepatic Duct Stones, New England J. Med. 207:685-690 (Oct. 20) 1932.

[2] Lahey, F. H.: Common and Hepatic Duct Stones, Am. J. Surg. 40:209-216 (April) 1938.

[3] Cole, W. H.: Factors in Prognosis and Mortality of Gall-Bladder Disease. Collective Review, Surg., Gynec & Obst 69:40-46 (July) 1939.

cate that unnecessary exploration of the bile ducts is to be avoided. In this borderline group of patients cholangiography at operation can be of great value. Through its use unnecessary exploration of the ducts can be avoided, or if pathologic changes are demonstrated by the cholangiogram, corrective surgical measures can be introduced immediately (fig. 1).

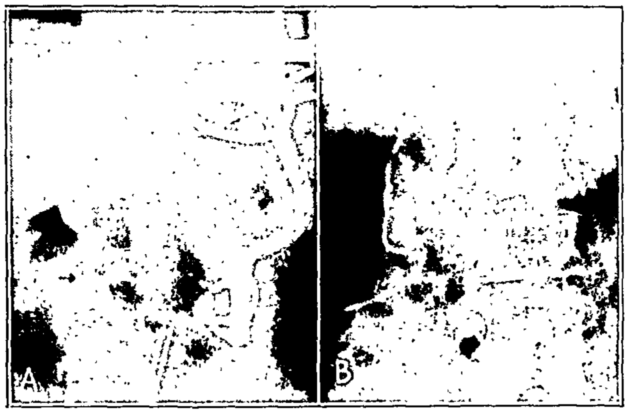

Fig. 1.—A—Cholangiogram made at time of operation. It shows obstructive dilatation of duct system with defect at distal end of common duct due to stone. B—Postoperative cholangiogram made two weeks after removal of stone. It demonstrates patency of common duct with residual slight dilatation of duct system.

We should like to add still another reason for the more frequent use of immediate cholangiography. If there is any reason to suspect injury to the bile ducts during operation, it is of fundamental importance to visualize the ducts before the abdomen is closed. Indeed it would seem logical to employ cholangiography even when the technical approach seems simple, as Gray[4] has suggested that the mobility of the ducts in uncomplicated cases increases the likelihood of their being pinched, kinked, ligated or transected during the isolation and ligation of the cystic duct and artery.

Since exploration of the common duct is practically always followed by T tube drainage of the duct, delayed cholangiography can, and should, be repeated at intervals after the operation until the bile ducts have returned to a normal or postoperative physiologic state. Rather frequently the common duct remains abnormally dilated for a considerable time after removal of obstructing duct calculi. In all of these cases postoperative cholangiography can demonstrate a return of the ducts to normal size and tone and will thereby furnish reliable information on which to base discontinuation of T tube drainage (fig. 2).

In most of our cases the T tube was left in the common duct one month; however, if the cholangiogram showed continued dilatation with delayed emptying of the common duct, the T tube was left in place for a second month or occasionally longer when indicated. We know of no instance in which the T tube has led to recurrence of stones or formation of stricture.

Stones not demonstrated at the time of the first operation can usually be detected by postoperative cholangiography. Likewise, changes occurring after operating—i.e., strictures, postoperative inflammatory narrowing of the ducts—can be visualized. Spasm of the sphincter of Oddi can usually be differentiated from organic obstruction by the relaxation of the spasm following the use of one of the nitrites.[5]

METHODS[6] EMPLOYED IN IMMEDIATE AND DELAYED CHOLANGIOGRAPHY

In our experience we have found that more can be gained by actual delineation of the hepatic ducts, and in many cases the radicles, by rapid injection into the T tube using a syringe. Over the years we have tried a variety of opaque mediums and at present are satisfied with 35 per cent iodopyracet solution. When the injection method is employed the dye enters the ducts so rapidly that the relatively small opening through the ampulla does not permit rapid transit into the duodenum. Intraductal pressure accordingly rises enough to allow complete filling of the hepatic ducts and radicles. We have had no serious ill effects from the utilization of this method in well over one hundred cholangiograms. Roentgenoscopic control is utilized in the delayed examination. In this manner overdistention of the ducts can be prevented. A spot roentgenogram is taken under fluoroscopic control during the injection of the first few cubic centimeters of dye. The injection is repeated as regular 10 by 12 inch (25.4 by 30. cm.) or 14 by 17 inch (35.6 by 43.2 cm.) films are exposed. Films are exposed fifteen minutes and thirty minutes after injection to determine the amount of dye remaining in the biliary tree. During this half hour the T tube is clamped.

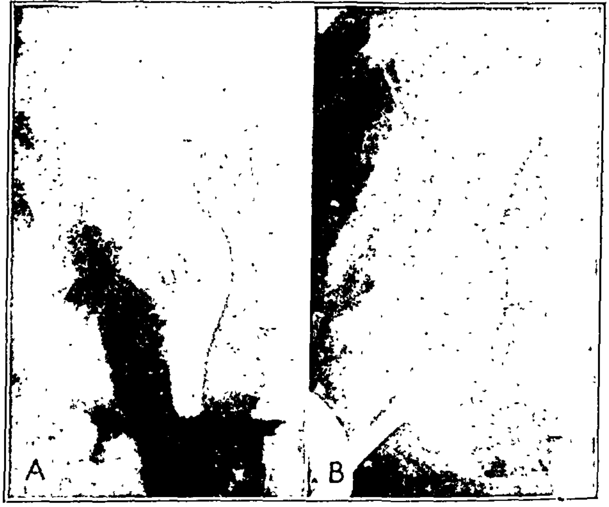

Fig. 2.—A—Postoperative cholangiogram made one month after removal of common duct stone. It illustrates obstructive dilatation of duct system despite use of amyl nitrite. Continued T tube drainage and reexamination in one month were advised. B—Cholangiogram one month later demonstrates patency of common duct and considerably less dilatation of duct system. *Previous obstruction was probably due to residual inflammatory changes which subsided on further drainage.*

COMMENT

Extrahepatic Duct Stones.—In the group with extrahepatic duct stones were 46 patients originally operated on at Cleveland Clinic Hospital for biliary disease. Either all presented a history consistent with a preoperative diagnosis of ductal disease or at operation the findings were such as to demand exploration of the common duct. In all patients the duct was first palpated, then probed and finally irrigated. Catheters were passed proximally into the hepatic ducts, and in every case the common duct was believed to be patent as a probe was passed distally into the duodenum.

Stones were recovered at operation in each one of the 46 patients. Thirty-three had cholelithiasis and choledocholithiasis, while 10 patients had stones only in the gallbladder. In the 3 remaining patients stones were recovered only from the common duct.

Eleven of the 46 (23.9 per cent) required a second

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4. Gray, H. K.: Injuries to Extrahepatic Bile Ducts, Am. J. Surg. 40:217-222 (April) 1937.

5. (a) Walters, W.; [illegible] Butsch, W. L., and Knepper, P. A.: Pathologi[illegible] [illegible]on Bile Duct: Its Relation to Biliary Colic, [illegible] (Nov. 13) 1937. (b) Hunt, H. B.; Hicken, N[illegible] [illegible]xploration of Biliary Ducts by Cholangiography [illegible] Operation, Am. J. Roentgenol. 38:542-564 (Oct.) 1937.

operation for a stone or stones not found at the first exploration. In 1 patient it was necessary to do a third operation before all the stones in the common duct were removed. Our incidence of cases in which stones were not found at first exploration parallels Mixter's incidence.[6d] 26.8 per cent. At the time of the first operation 9 of the 11 had stones in both the gallbladder and the common duct; 1 had stones in the gallbladder only; and 1 had stones in the common duct only. In 10 of the 11 patients the stones in the biliary duct were accurately identified by postoperative cholangiograms which were made within a thirty-four day period. The other patient was reexplored without having had postoperative cholangiography.

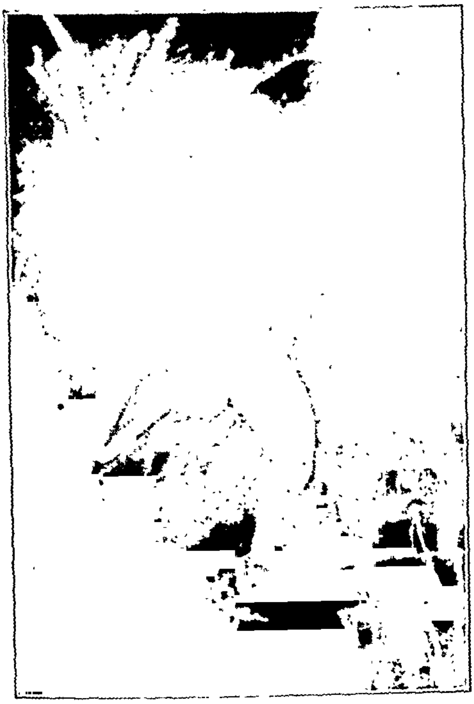

Fig. 3.—Stone found at ampulla as well as pronounced dilatation of duct system despite incomplete obstruction, as indicated by dye in duodenum.

It is our opinion that this interval of time was too short for new intraductal stones to form and that reoperation might have been avoided in all 11 cases if cholangiography had been employed at the time of operation.

Abell[7] adequately explained the surgeons' difficulty when he stated that if many stones are present in the common duct it is not always possible for the surgeon to be sure he has removed them all. In addition he believes that if the gastrohepatic omentum is thickened because of edema and swelling or if the common duct passes directly through pancreatic tissue before entering the duodenum it is practically impossible to determine whether stones are present in the duct by palpation alone. One of our own cases beautifully illustrates this point. A second operation was performed to recover a stone not found at the first operation and later identified in the distal end of the common duct by a postoperative cholangiogram. At the second exploration no stone could be found after careful palpation of the entire common duct, but because of definite cholangiographic evidence, a transduodenal exploration of the common duct was undertaken and an almond-sized stone removed from the ampulla (fig. 3).

In addition to our own 46 patients there were 19 others who had had original biliary operations elsewhere. All of these required a second operation at the Clinic Hospital to remove from the biliary duct stones apparently not found at the first operation. Five of these 19 patients (25.2 per cent) required a third operation before all the stones were removed from the ducts. In 1 of these the stones were lodged in the hepatic ducts. Delayed cholangiography revealed the stones in 4 of these 5 patients. In the fifth patient, who had stones in the hepatic ducts, cholangiography failed to disclose the stones. We attribute this to a previous hepatoduodenostomy because, as will be explained later, it is not always possible to outline the hepatic ducts satisfactorily after this surgical procedure.

So far, immediate cholangiography has been used at this hospital on a proportionately small series of patients, but in none of these has reoperation been required to date. It is rather widely agreed that immediate cholangiography is not infallible in the presence of multiple small stones or gravel or sand, especially when there is no obstruction of the duct.

Extrahepatic Duct Stricture.—Twenty-five patients were referred to the Clinic with obstruction of the biliary tract due to stenosis or stricture of the common duct. Eleven of these patients required more than two operations, and a total of sixty-five surgical procedures were done on the 25 patients. Some type of surgical anastomosis was necessary in each instance to insure free flow of bile into the intestinal tract.

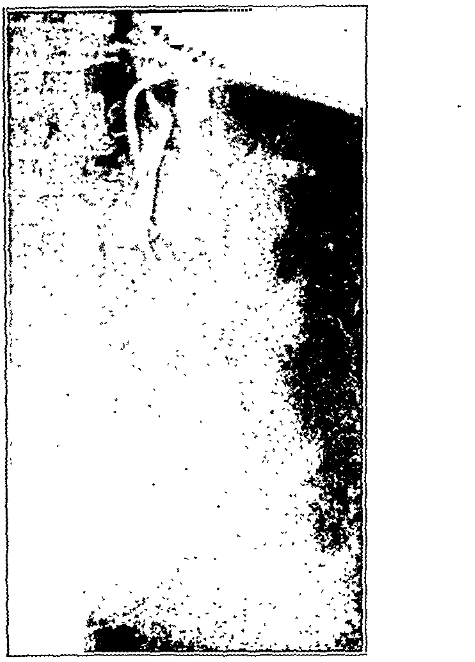

Fig. 4.—*Postoperative cholangiogram demonstrating reconstruction of severed common duct about T tube. Patency of anastomosis indicated by absence of dilatation and presence of dye in small bowel.*

It is frequently difficult to determine by either history or surgical exploration the cause of these strictures. Jaundice with acholic stools was present in 22

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6. (a) Best, R. R., and Hicken, N. F.: Technique of Immediate Cholangiography, Surg. Gynec. & Obst. 65:217-219 (Aug.) 1937. (b) Hunt, Hicken and Best. 5b (c) Hufford, C. E.: Postoperative Visualization of Biliary Tract, Am. J. Roentgenol 37:154-166 (Feb.) 1937. (d) Mixter, C. G., and Hermanson, L.: Critical Evaluation of Cholangiography, Am. J. Surg. 40:223-231 (April) 1938. (e) Robins, S. A., and Hermanson, L.: Cholangiography: Modified Technique for X-Ray Visualization of Bile Ducts During Operation, Surg., Gynec. & Obst. 62:684-688 (April) 1936.

7. Abell, I., in discussion on Thompson, M., and Bell, J.: Cholangiography, Kentucky M. J. 38:280-285 (July) 1940.

of the 25 patients. Eight had the onset of jaundice from a few days to four weeks following the primary operation. The usual story described excessive drainage of bile occurring shortly after operation, persisting for a few days, then diminishing, only to be followed by the appearance of jaundice and acholic stools. In this group transection of the common duct at the first operation was believed to be the most common cause of trouble.

Six of the 25 patients were free of jaundice for one or more years, following the first operation, and 8 others had intermittent attacks of jaundice. In these 14 patients the cause of obstruction is debatable, but conjecture is permissible. Judd[8] was of the opinion that an obliterative inflammation can and does occur in the duct system. Gray,[4] on the other hand, believed that trauma at the first operation was a much more logical explanation of either immediate or delayed obstruction. Recently Cattell[9] reported a series of 123 benign strictures of the biliary ducts, 80 per cent of which were caused by operative injury.

Cholangiography at the time of the second exploration is seldom feasible if the ducts have been cut or traumatized. Either the proximal end of the cut duct retracts into the liver bed, or what remains of the duct is hardly more than a fibrotic cord, making it impossible to inject opaque material. However, if the common duct can be reconstructed over a T tube, injection of dye through the tube will give additional information as to the character and patency of the anastomosis (fig. 4).

Cholangiograms following choledochoduodenostomy or hepatoduodenostomy are primarily of value to show the flow of dye into the duodenum. With such anastomosis the action of the sphincter of Oddi is eliminated, and it is usually impossible to build up sufficient intraductal pressure to visualize completely the hepatic radicles.

SUMMARY

Postoperative cholangiography was 93.3 per cent accurate in demonstrating in the common duct stones not found at previous surgical explorations. Cholangiography at the time of operation can lower the incidence of reoperation for stone or for ductal trauma and prevent stricture due to unrecognized operative trauma. Operative cholangiography in the presence of stricture, stenosis or transection of the common duct may not be feasible. Delayed cholangiography in this group can demonstrate the patency of the newly constructed anastomosis. In all cases, postoperative cholangiography provides the best criteria for discontinuing T tube drainage.

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8. Judd, E. S.: Stricture of Common Bile Duct, Ann. Surg. 84:404-410 (Sept.) 1926.

9. Cattell, R. B.: Benign Strictures of Biliary Ducts, J.A.M.A. 134:235-239 (May 17) 1947.

ELECTROENCEPHALOGRAPHIC STUDIES IN POLIOMYELITIS

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There has been much speculation as to the extent of cerebral involvement in poliomyelitis. Recent pathologic and experimental material has suggested that it is greater than what would be suspected on clinical grounds.

The proportion of cases with frank clinical manifestations of encephalitis is relatively small in most epidemics of poliomyelitis. In those instances, the drowsiness deepening into coma, often profound and prolonged, the tremors and the rigidity, leave no doubt as to the invasion of the brain by the disease process. Involvement of the brain is much less certain in milder clinical pictures, although it has been suspected as an explanation of the unusual emotional states often encountered during the acute stage of poliomyelitis. As for the disturbed behavior which has been known to occur as a late sequel of poliomyelitis, and which is being extensively studied,[1] most explanations have been based on the psychologic trauma of crippling disabilities and prolonged hospitalization. However, the possibility that some of those disturbances may have an organic basis analogous to other postencephalitic states has by no means been excluded, and remains for our further consideration.

In the monkeys inoculated with poliomyelitis virus by Hurst,[2] no part of the central nervous system ever entirely escaped damage. Sabin and Ward[3] demonstrated lesions in the basal ganglions, midbrain and hypothalamus in monkeys with nonparalytic poliomyelitis. Bodian and Howe[4] have demonstrated that in monkeys in whom experimentally produced poliomyelitis was nonparalytic, almost every degree of severity and spread of pathologic change could occur. It is conceivable that this may be true of nonparalytic and nonencephalitic cases among human beings as well. Pathologists have for many years pointed out that poliomyelitis affects the central nervous system in a most diffuse manner[5] and that in human necropsy material there is a disparity between the severity of the lesions found in the brain and the clinical indications of encephalitis.[6] However, cases of severe disease with fatal outcomes are necessarily those on which such observa-

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From the Departments of Pediatrics and Neurology, McGill University, and from the Children's Memorial Hospital and Neurological Institute.

Read before the Section on Pediatrics at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

1. (*a*) Ebaugh, F. G., a [illegible] Relationships in Acute Anterior [illegible] 13:115-121 (Jan.) 1947. (*b*) Stanfield, [illegible] Anterior Poliomyelitis: A Review o[illegible] 14 (Jan.) 1947. (*c*) Crothers, B., and [illegible] Psychiatric Implications of Poliomyelitis, J. Pediat. **28**: 324-326 (March) 1946. (*d*) Myer, E.: Psyc[illegible] Group of Children with Poliomyelitis, ibi[illegible]

2. Hurst, E. W.: [illegible] Poliomyelitis, J. Path. & Bact. **32**: 457 [illegible]

3. Sabin, A. B., a[illegible] Non-Paralytic and Transitory Paralytic [illegible]s Inoculated with Human Virus, J. Exper. Med. **73**: 757-770 (June) 1941.

4. Bodian, D., and Howe, H. A.: Experimental Non-Paralytic Poliomyelitis: Frequency and Range of Pathologic Involvement, Bull. Johns Hopkins Hosp. **76**: 1-17 (Jan.) 1945.

5. Faber, H. K. [illegible] Primary Disease of the Central Nervous Sy[illegible] 12: 83-136 (May) 1933.

6. Peers, J. H.: [illegible] Poliomyelitis in Man, Am. J. Path. **19**: [illegible]orth, F. W.: Personal communication to the author.

tions were made. Until there are more pathologic studies of cases of nonfatal poliomyelitis in which death was due to an unrelated cause the problem will remain unsettled.

In the meantime, it would seem reasonable to consider whether electroencephalographic analysis of patients with poliomyelitis might serve as a useful extension of our clinical criteria of encephalitic involvement in poliomyelitis.

MATERIAL AND METHODS

Fifty patients who contracted poliomyelitis in the summer and autumn of 1946 were examined electroencephalographically. An effort was made to include as many patients as possible with definite signs of encephalitis: These comprised only 18 per cent of the series. The remainder of the cases were taken at random and included a variety of clinical pictures due to poliomyelitis. Thirty-nine of the 50 patients were under 14 years of age, distributed fairly evenly between the ages of 2 and 13 years. The others ranged in age from 14 to 34 years. These children and the adults were patients at the Children's Memorial Hospital or the Alexandra Hospital,[7] with the exception of 2 whom members of the attending staff of the Children's Memorial Hospital enabled us to include in this series.

A total of sixty-four electroencephalographic examinations were made. Thirty-nine of the patients were examined once, 10 twice, and 2 were examined three times. Fifteen of the patients were examined within three months of the onset of their disease. Eleven of these were reexamined after an interval of five to eight months, the other 4 not being available for reexamination. One patient was examined four months after his disease began and again three months later. Each of the remaining 34 patients had a single electroencephalogram taken between four and eight months after the onset of poliomyelitis.

We were interested in the various clinical manifestations of encephalitis in these patients. Five children were comatose for periods varying from several hours to twenty-five days. In 3 of these, generalized plastic rigidity was an outstanding feature; on disappearing, it left a spastic hemiparesis in its wake, which was indistinguishable in 1 case from that caused by an upper motor neuron lesion. In this latter instance, aphasia was also present. Two of these children exhibited coarse tremors, of a type usually associated with lesions of the basal ganglions. A sixth child was profoundly apathetic and irritable, although retaining consciousness, and showed gross tremors and incoordinate movements. These 6 patients were considered to have had manifestations of severe encephalitis. Three other patients were classified as manifesting moderate encephalitis; 1 young adult was confused and irrational for two days; 1 child wandered from his bed, apparently disorientated, and in addition exhibited occasional coarse tremors; 1 child had a convulsion, and later strolled right out of the hospital.

Lesser degrees of drowsiness, apathy, delirium or irritability, mostly accompanying fever, occurred in 14 patients. These reactions were not more pronounced than what one sees during the acute stage of many infectious diseases in children, though they may well represent a mild encephalitic involvement of some sort. For the purpose of this study these patients were classified as manifesting slight encephalitis. Finally there were 27 patients who manifested no such symptoms at any stage of their disease, and these were classified as showing no apparent clinical signs of encephalitis.

In assessing the problems of behavior and personality in these patients, we had recourse only to information obtained from the case reports and the nursing staff as to behavior during the stay in the hospital, and from the parents or close relatives as to behavior after discharge. (It is hoped to include psychiatric examination of these patients in a long term study of these relationships; this is planned for the near future.) Eleven patients, all children, were reported to have shown moderate or severe personality disorders. (Only 3 of these had much physical disability.) Emotional instability, as shown by a tendency to weep (less commonly to laugh) on slight and quite inadequate provocation, was common to all of these children. This feature has been noted in previous studies. Four were having trouble in school, due, it was thought, to increased difficulty in learning, although in 1 case it was felt that the child could learn as well but at a slower rate than hitherto. All these children were more irritable, some to an extreme degree. Four were reported to have become aggressive. Two had fear fantasies, and one was negativistic. Besides these 11, 9 children showed mildly disturbed behavior. In 7 of these, unwarranted weeping was the chief change. Three had night terrors in addition. One child became unwontedly submissive: 1

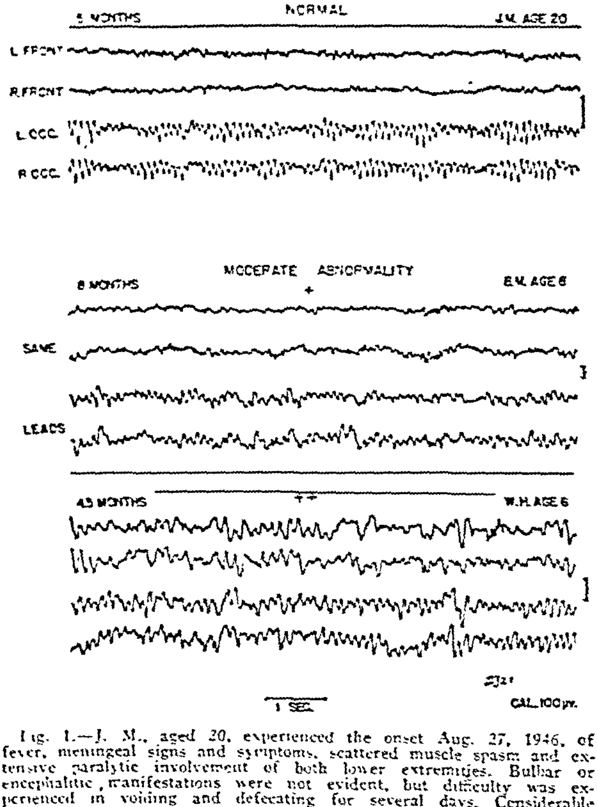

Fig. 1.—J. M., aged 20, experienced the onset Aug. 27, 1946, of fever, meningeal signs and symptoms, scattered muscle spasm and extensive paralytic involvement of both lower extremities. Bulbar or encephalitic manifestations were not evident, but difficulty was experienced in voiding and defecating for several days. Considerable pleocytosis was present, and a positive reaction to the Pandy test in cerebrospinal fluid. There was no personality change. B. M., aged 8, suffered the onset July 27, 1946, of fever, headache and nuchal rigidity. Weakness in left calf and nasal tone of voice developed with deviation to the left of the palate. There was moderate pleocytosis and a positive reaction to the Pandy test in the cerebrospinal fluid. B. M. has been irritable since then and does not maintain previous good standard of school work. W. H., aged 6, experienced the onset Sept. 4, 1946, of fever, headache, vomiting, drowsiness, confusion and finally coma for several days. There was slight meningeal irritation, spotty distribution of muscle spasm and weakness. Generalized clonic movements and plastic rigidity were most pronounced in the right upper limb; there were pleocytosis and positive reaction to the Pandy test in the cerebrospinal fluid; persistent right spastic hemiparesis with gradual improvement; emotional instability during early convalescence with no residual personality disorder.

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[7] Dr. E. M. Worden granted us permission to examine the records of the poliomyelitis wards at the Alexandra Hospital.

seemed to lose all affective feeling toward his siblings. The remaining 30 patients were reported to exhibit no change in their behavior not easily accounted for (for example, several parents remarked that their children had become spoiled since they had been ill).

In addition to the 50 patients described, 8 children were examined five years after acute poliomyelitis (in 1942) Their protocols were taken at random from the files of the Children's Memorial Hospital. None had a history of pronounced signs of encephalitis, although in 1 child the mother reported unusual drowsiness for four days prior to admission. Questioning the parents with regard to behavior revealed that in 2 behavior difficulties had become sufficiently great to require psychiatric treatment. In 1 other child there was poor emotional adjustment during convalescence, while in the remaining 5 children no significant behavior difficulty was noted. The results of the electroencephalographic examination of this group of patients will be considered separately as a preliminary study of the possible late residual changes.

Electroencephalographic examinations were carried out at the Montreal Neurological Institute with the standard technic used in these laboratories.[8] Records were taken under standard conditions from left and right frontal regions and from left and right occipital regions with the ears as a reference, and also with paired leads on the scalp over frontocentral and parieto-occipital regions on each side. In special instances additional electrodes were placed to localize more precisely some abnormality apparent in the exploratory examination.

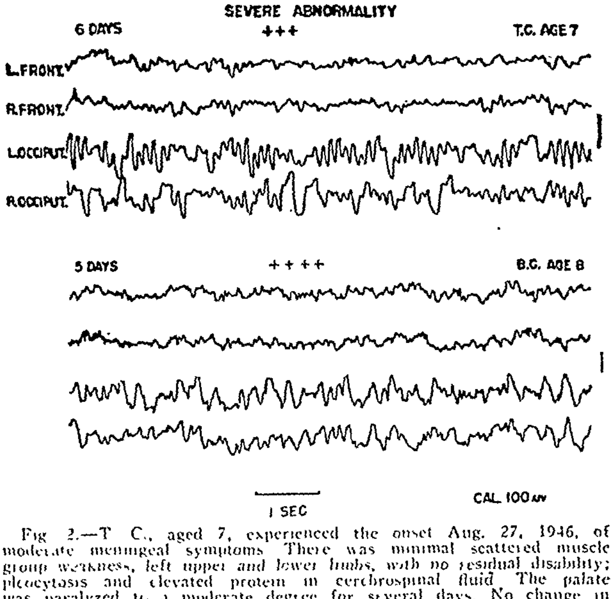

Fig 2.—T C., aged 7, experienced the onset Aug. 27, 1946, of moderate meningeal symptoms There was minimal scattered muscle group weakness, left upper and lower limbs, with no residual disability; pleocytosis and elevated protein in cerebrospinal fluid The palate was paralyzed to a moderate degree for several days. No change in personality occurred B. C., aged 8, experienced the onset Sept 1, 1946, of slight fever, symptoms of meningeal irritation, some drowsiness and slight confusion in first few days There was no evidence of cranial or spinal nerve paralysis. A slight pleocytosis and a positive Pandy reaction in cerebrospinal fluid were present. B C is now emotionally unstable and aggressive, receiving unsatisfactory grades at school

Hyperventilation for two to three minutes was carried out in most cases. In many cases, when the response to hyperventilation was pronounced, 75 Gm. of glucose was administered by mouth and the hyperventilation repeated in twenty to thirty minutes in order to rule out a response to hyperventilation facilitated by low blood sugar.

The electroencephalographic records were interpreted as they were taken by either Dr. Herbert Jasper or Dr. David Daly and the degree of abnormality indicated on an arbitrary scale of 1 to 4 plus (figs. 1 and 2), somewhat similar to that described by Jasper and Kershman for electroencephalograms in patients with head injuries.[9] Special allowance was made for the slower spontaneous rhythms and the greater amount of irregularity normally observed in young children. The normal tendency for children to be more readily affected by hyperventilation was also taken into account in the interpretation of these records. However, when high-voltage slow waves appeared after thirty seconds to one minute of hyperventilation and were repeated after the administration of glucose, it was considered of some significance in the evaluation of the degree of electroencephalographic abnormality. This reaction was considered of more definite significance in children over 10 years of age.

Finally, after the present series was complete all the electroencephalogram records were reviewed by one of us (H. H. J.) and the ratings as to the degree of abnormality reconsidered. It was found that a few of the records had to be reclassified slightly but that in most instances the original classification was retained, and what is more important, the classifications given by Dr. Daly independently were in most instances confirmed exactly by one of us (H. H. J.) in the final review of the records.

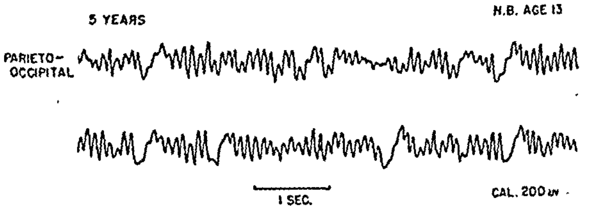

Fig. 3.—Fused alpha activity N. B, aged 15, experienced the onset Aug. 6, 1942, of headache, listlessness and meningeal signs and symptoms. There was paralytic involvement mainly of the right upper limb. Extensive and persistent muscle spasm occurred with development of severe scoliosis; moderate pleocytosis was present and a positive reaction to Pandy test in cerebrospinal fluid N B was a behavior problem during early convalescence with objectionable attention-securing maneuvers. No residual change has occurred.

RESULTS

The form of abnormality consisted chiefly of the replacement of the normal alpha and beta rhythms more or less completely by slow waves of moderate voltage at frequencies from about 6 per second down to as slow as 1 per second in the extreme cases (figs. 1 and 2). In the cases of milder disease the disturbance was frequently limited to a curious irregularity in the parieto-occipital alpha rhythm giving the appearance of the fusion of a number of alpha waves into an irregular slow wave (fig. 3). This "fused alpha" picture was observed to form a part of the abnormality in 26 of the 37 patients with abnormal electroencephalographic records. In the cases of more severe disease the slow wave abnormality appeared diffusely from all head regions but was often particularly prominent when the ears were used as reference electrodes ("monopolar"), which suggests involvement of subcortical cerebral structures. This was confirmed in some instances by means of the "basal lead" placed on the posterior part of the nasopharynx. In a few cases one hemisphere seemed much more involved than the other, and occasionally the abnormality seemed greater from a particular brain area, though in no cases was focal abnormality present without some disturbances in the electrical activity of the rest of the brain. In all cases showing any abnormality whatsoever there was a disturbance in the parieto-occipital alpha rhythm of both hemispheres.

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[8] Jasper, H. H.: Electrical Activity of the Brain, in Luck, J. M.: Annual Review of Physiology, Stanford University, Calif., Annual Reviews, Inc., 1941, vol. 3, pp 377-398.

[9] Jasper, H. H., Kershman, J., and Elvidge, A.: Electroencephalographic Studies of Injury to the Head, Arch. Neurol. & Psychiat. **44:** 328-350 (Aug.) 1940.

The sudden appearance of slow waves, 3 to 6 per second, of increased voltage during a short period of hyperventilation (one to two minutes) was found in 14 of the 32 patients in whom this test was carried out (fig. 4). In 13 of these 14 positive reactions the patients were under 10 years of age. Only 7 of the 18 patients giving negative reactions were under 10 years of age. The greater proneness of children to electroencephalographic disturbances with hyperventilation is well recognized, so that an evaluation of these reactions in young children following poliomyelitis is difficult. We are of the impression, however, that the reactions observed in this group were more severe and of higher incidence that would be expected in a random sampling of "normal" children in this age group,[10] although the final interpretation of this observation must await further study.

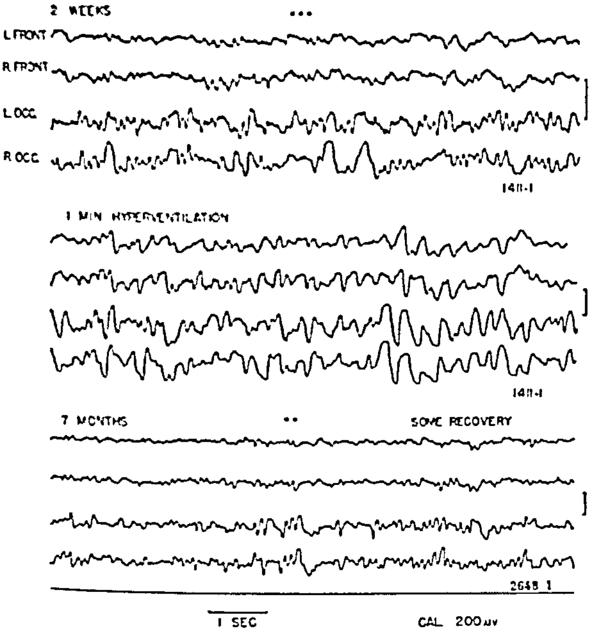

Fig. 4.—M. C., aged 10, had a difficult forceps birth and experienced fainting spells throughout early childhood, usually when fasting or when riding streetcars. There was insidious onset Aug. 9, 1946, of malaise, slight fever, anorexia and vomiting. A few fainting spells, headache and pain in the back and legs preceded a brief tonic convulsion for which she was admitted August 21. She was afebrile and well thereafter, although disorientated on the second day in the hospital. Fasting blood sugar and nonprotein nitrogen levels and roentgenograms of the skull were normal. Protein in cerebrospinal fluid was elevated. Minimal transitory paralysis of the right lower limb, a suggestion of acute encephalopathy in t occurrence of definite poliomyelitis in a a diagnosis of polioencephalitis. There was

Fifteen patients were examined initially during the first three months, including 9 patients examined within five to twenty days of the onset of their illness. Abnormal electroencephalograms were found in all these patients; the abnormalities were considered mild or moderate in 8 cases and severe in 7 cases. Of the 11 patients who were reexamined five to eight months later the electroencephalogram had returned to normal in 4, while definite residual abnormalities (4 moderate and 3 severe) were present in the remaining 7 patients. Examples of patients showing definite recovery in the electroencephalogram are presented in figures 5 and 6.

The incidence of electroencephalographic abnormality in the total group of 50 patients examined within eight months after the onset of poliomyelitis is show in table 1.

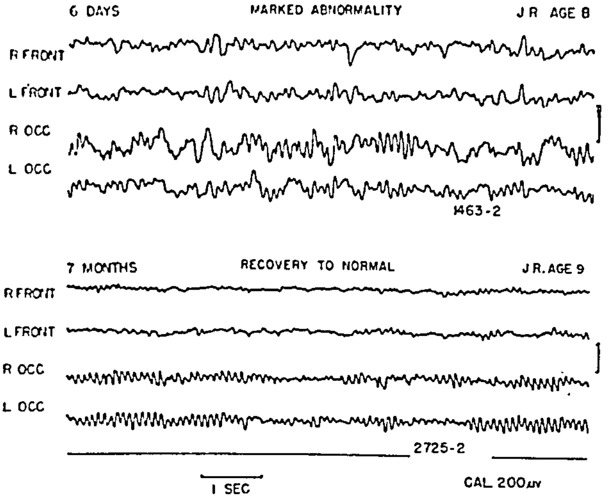

Fig. 5.—J. R., aged 8, experienced the onset Aug. 31, 1946, of fever and severe meningeal irritation, and was delirious for two hours on the third day. Widespread paralysis developed with absent tendon reflexes in right lower limb, as well as persistent spasm and early contracture of right calf muscles. There was pleocytosis and a positive Pandy reaction in cerebrospinal fluid. Since this time J. R. has nightmares and fear fantasies, and weeps on slight provocation.

Normal electroencephalographic records were obtained in only 13 (26 per cent). Of the 74 per cent of cases showing abnormality, in 26 per cent the abnormalities were considered severe and in 48 per cent moderate. There was a clear tendency for more electroencephalographic abnormality to be found in the patients under 14 years of age (82 per cent) as compared with those over 14 years of age (46 per cent). In only 1 of the latter group was the electroencephalographic abnormality considered severe.

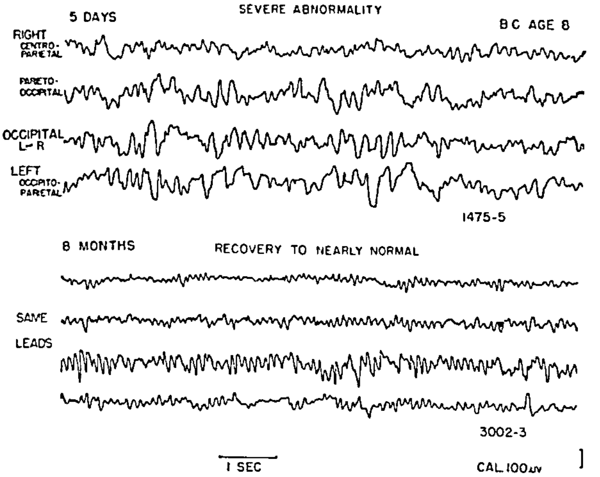

Fig. 6.—B. C., aged 8, experienced the onset Sept. 1, 1946, of slight fever, symptoms of meningeal irritation, some drowsiness and slight confusion in first few days. There was evidence of cranial or spinal nerve paralysis; slight pleocytosis and positive Pandy reaction in cerebrospinal fluid were present. B. C. is now emotionally unstable and aggressive, receiving unsatisfactory grades at school.

In order to eliminate the more acute and more rapidly reversible effects of the disease on the electroencephalogram, results from 46 patients examined between four and eight months after the onset of the illness were considered separately in table 2. There were 30 patients in this group (65 per cent) who showed definite residual abnormality in the electroencephalogram; in 23 it was considered of moderate degree (48 per cent) and in 8 it was considered severe (17 per cent). The importance of age is equally clear in this group, since electroencephalographic abnormality was present in 74 per cent of patients under 14 years of age and in only 36 per cent of those over 14, none of the latter group having abnormality of severe degree.

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[10] Liberson, W. T., and Strauss, H.: Electroencephalographic Studies: Slow Activity During Hyperventilation in Relation to Age, Proc. Soc. Exper. Biol. & Med. 48: 674-676 (Dec.) 1941.

TABLE 1.—*Initial Electroencephalograms in Patients Having or Convalescent from Acute Poliomyelitis.*

		Under 14 Years	Over 14 Years	Total
Patients Examined		39	(11)	(50)
Abnormal E.E.G.	Severe	30.8%	0.9%	26%
	Moderate	51.3%	36%	48%
	Total	82.1%	46%	74%
Normal E.E.G.		17.9%	54%	26%

In a further preliminary attempt to ascertain how long these electroencephalographic changes may persist we have examined 8 patients five years after the acute attack of poliomyelitis. In 5 of these patients definite abnormalities were observed in the electroencephalogram, considered of severe degree in 2 and of moderate degree in 3. In addition one of us (H. H. J.) with Dr. Penfield has recently examined a patient with extremely severe residual electroencephalographic abnormality of a diffuse character which resulted from a severe attack of polioencephalomyelitis fifteen years ago. There was residual lower motor neuron paresis of the lower extremities, but the patient was referred to us because of severe and persistent generalized epileptiform seizures which developed fifteen years after the acute encephalitis. There was also a progressive deterioration in personality. This patient presented the most extreme residual of polioencephalitis yet encountered, both with regard to the clinical condition and the changes in the electroencephalogram, but the difference should probably be considered one of degree rather than of kind when compared with the other cases in this series.

TABLE 2.—*Electroencephalograms 4 to 8 Months After Onset of Poliomyelitis*

		Under 14 Years	Over 14 Years	Total
Patients Examined		35	11	46
Abnormal E.E.G.	Severe	22.9%	0%	17.4%
	Moderate	51.4%	36.3%	47.8%
	Total	74.3%	36.3%	65.2%
Normal E.E.G.		25.7%	63.6%	34.8%

TABLE 3.—*Initial Electroencephalograms and Clinical Encephalitis in Poliomyelitis*

		Severe Encephalitis	Moderate Encephalitis	Mild Encephalitis	No Clinical Encephalitis
Patients Examined		6	3	14	27
		Severe Encephalitis	Moderate Encephalitis	Mild Encephalitis	No Clinical Encephalitis
Abnormal E.E.G.	Marked	2	1	3	5
	Moderate	4	2	7	12
	Total	6	3	10	17
Normal E.E.G.		0	0	4	10

The relation between the clinical signs of encephalitis and the degree of abnormality in the electroencephalogram was examined (table 3). All of the 9 patients who had been considered to have shown clinical signs of severe moderate encephalitic involvement during the acute stage of their disease were found to have abnormal electroencephalograms (6 moderate and 3 severe). The electroencephalographic records were not taken during the acute stage of the disease, all but one being taken two to six months later. In the 1 case a severe electroencephalographic abnormality was observed two weeks after the onset of the disease, after the acute clinical signs had subsided, and a pronounced electroencephalographic abnormality was still found on reexamination seven months later. Of the 14 patients who showed only mild signs of clinical encephalitis, there were 10 who showed abnormalities in the electroencephalogram (7 moderate and 3 severe). Two of those with severely abnormal electroencephalograms were examined within the first week of the illness so that the changes represented the acute phase of the disease; in the third patient with severe electroencephalographic changes the electroencephalogram was taken five months after the acute onset. Of the 27 patients with no apparent clinical signs of encephalitis there were 17 with abnormal electroencephalograms (12 moderate and 5 severe). Of the 5 patients with severe electroencephalographic changes only 3 were examined within the first three weeks of the disease. There were 15 of the 27 patients with no obvious clinical encephalitis who showed persistent electroencephalographic abnormality between one and eight months following the onset of the disease.

Table 4 summarizes the correlation between the electroencephalographic abnormality and the behavior disturbance following poliomyelitis in our patients. Ten of 11 patients with severe behavior disturbances showed abnormal electroencephalograms, while 6 out of 10 with normal behavior showed abnormal electroencephalograms.

TABLE 4.—*Final Electroencephalograms and Disturbed Behavior Following Poliomyelitis*

		Marked Behavior Disturbance	Mild Behavior Disturbance	Normal Behavior
Patients Examined		11	10	25
Abnormal E.E.G.	Marked	2	2	4
	Moderate	8	4	8
	Total	10	6	12
Normal E.E.G.		1	4	13

The relation of electroencephalographic abnormality to the level of paralytic involvement was considered. Thirty-seven of the 50 patients had evidence of lower motor neuron paralysis. In 9 of these the involvement was confined to the cranial nerves, in 20 to the spinal cord, and in 8 there were both cranial and spinal involvement. The other 13 patients showed no apparent paralysis. Twenty-seven out of 37, or 73 per cent, with paralysis had abnormal electroencephalograms (17 moderate, 10 severe), whereas 9 of 13 (69 per cent) without paralysis had abnormal electroencephalograms (5 moderate, 3 severe). In the 9 patients with paralysis confined to the cranial nerves, 8, or 89 per cent, had abnormal electroencephalograms (5 moderate, 3 severe). In the 20 patients with paralysis confined to the muscles supplied by the spinal nerves, 13, or 65 per cent, had abnormal electroencephalograms (8 moderate, 5 severe). Six of the 8 patients, or 75 per cent, with both cranial and spinal involvement had abnormal electroencephalograms (4 moderate and 2 severe). Although the number of patients is not large enough to permit definite conclusions to be drawn, these figures suggest a tendency for patients with involvement of the cranial nerve to have a higher incidence of electroencephalographic abnormality than patients with spinal nerve paralysis or without any paralytic involvement.

COMMENT

Evaluation of the significance of electroencephalographic abnormality of the diffuse nonspecific form observed in many of the patients in the present study must be made with some caution if these changes are to be definitely attributed to polioencephalitis. Since in no patients were there available electroencephalograms taken prior to this disease, the question of some form of encephalopathy existing prior to the polioencephalitis must be considered. In the first place such factors as hereditary nervous disease, birth difficulty or injury, previous encephalitis of any form or previous severe head injury were not notably prominent in the group of cases studied. In 1 case (M. C.) (fig. 4) there was a history of difficult forceps birth and "fainting spells" prior to the polioencephalitis. There were only 2 other patients in this group whose previous medical history might have had a bearing on this problem; namely, a girl who had been brought to the outpatient clinic for "nervousness" and behavior difficulty and a boy who appeared to have been mentally retarded None had a previous history of encephalitis of any form. Unfortunately, facilities have not been at our disposal for a thorough neuropsychiatric analysis as is being carried out in Denver by Dr. Ebaugh and his associates.[1a] Such a study is planned for the subsequent follow-up of these patients. It can be said at present, however, that there was no evidence available in the previous historiesof all but 2 or 3 of the patients in this series which might have contributed to the electroencephalographic abnormalities observed after their attack of poliomyelitis.

The criteria of electroencephalographic abnormality used in this study were severe. We have ignored minor irregularities, and in the younger children even rather pronounced irregularities, which might be considered of borderline significance in a random sampling of the "normal" population of this age group. Consequently the high incidence of 74 per cent definite electroencephalographic abnormality observed can be reasonably explained only on the basis of some encephalopathy due to the poliomyelitis virus.

The form of electroencephalographic abnormality was also more consistent with an encephalitic etiology,[11] although its diffuse character might have been due to other causes. Except in 1 or 2 cases there was no suggestion of the form of abnormality usually found in patients with idiopathic epilepsy. The peculiar disorder of the parieto-occipital alpha rhythm, termed "fused alpha" (fig. 3) was particularly prominent in this series of cases, although it cannot be considered specific for polioencephalitis. It may represent a disorder in the diencephalic regulating centers for cortical rhythms rather than a specific involvement of the occipital cortex itself, since cortical rhythms often reflect conditions existing in their subcortical projection nuclei.

Finally, the fact that the electroencephalographic abnormality was always most severe (except in 1 patient) if the examination was carried out during the first week of the illness and that definite recovery was observed in records taken several months later, some returning completely to normal (fig. 5), is perhaps the strongest argument in favor of the assumption that the disturbances in the electroencephalogram were, in most instances, a manifestation of the effects of polioencephalitis.

The difference between the incidence of electroencephalographic abnormality in the children and the incidence in the adults of this series is arresting. When Ebaugh and Hoekstra [1] in Denver reported that there was no significant abnormality in, the electroencephalograms of patients who had had poliomyelitis, we were struck by the discrepancy between this finding and our early results, which were disclosing a rather high incidence of abnormality. The Denver investigators had, however, purposely selected patients over 14 years of age in order to facilitate psychiatric examination, whereas we were dealing with patients of a wider age group, and mainly with children. We then analyzed our findings with regard to age (tables 1 and 2). The low incidence of abnormality in the group over 14 was in substantial agreement with the findings in Denver, but the strikingly high incidence of electroencephalographic abnormality in the children of this series is the significant new fact disclosed. It is difficult to explain this selective susceptibility of children to electroencephalographic disturbances following an attack of poliomyelitis.

A close correlation between clinical and electroencephalographic evidence of encephalitis has been demonstrated in one direction at least, inasmuch as all 9 patients with recognizable encephalitis had definitely abnormal electroencephalograms (table 3). In addition, 1 patient with an upper motor neuron lesion, whose clinical picture suggested encephalitis of a more focal character, had electrographic findings consistent with such localization (fig. 7). The situation is somewhat different when one considers the patients with no clinical suggestion of encephalitis, half of whom showed abnormalities in the electroencephalogram (table 3).

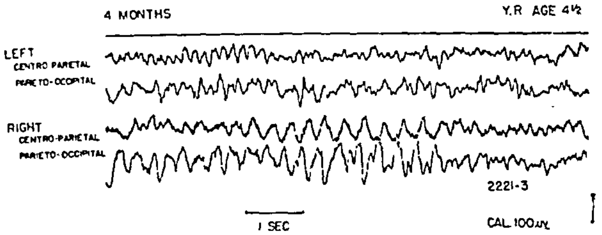

Fig 7.—Y. R., aged 4½, experienced the onset Sept. 6, 1946, of fever, headache and vomiting. Drowsiness and inability to speak preceded the generalized convulsive seizure on the sixth day, after which he was admitted. He remained semicomatose for three weeks. Slight pleocytosis and a slightly positive Pandy reaction in the cerebrospinal fluid were present. Coarse tremor of right arm, right internal strabismus and generalized lead pipe rigidity were replaced later by a spastic hemiplegia with early establishment of flexion contracture deformities. There were residual irritability and slight impairment of speech fluency.

Yet, in the light of both experimental and pathologic demonstration of more extensive cerebral involvement in poliomyelitis than is suggested by the clinical findings, it is tempting to consider that the electroencephalographic changes demonstrated in poliomyelitis represent cerebral disease.

The correlation between the development of disturbed behavior and abnormal electrical activity following poliomyelitis is high, with 10 out of 11 patients with severe behavior disturbances showing abnormal electrograms (table 4). In the 1942 group, all 3 with behavior disturbances had abnormal electroencephalograms. This suggests that there may well be an organic basis of the nature of a subclinical encephalitis underlying some of the severe forms of behavior problems occurring as sequels to poliomyelitis.

There is no correlation between mild personality disorders and electroencephalographic disturbances (table 4). This finding is compatible with the well known complexity of etiologic factors influencing behavior following poliomyelitis. One would not expect to find a close correlation between the electroencephalographic and behavior disorders, since the latter are largely conditioned by environmental situations and the disturbance in cerebral function reflected in the electroencephalogram may not be of a type which affects behavior in this sense.

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[11] Lindsley, D. B., and Cutts, K. K.: Clinical and Electroencephalographic Changes in a Child During Recovery from Encephalitis, Arch. Neurol. & Psychiat. **45:** 156-161 (Jan.) 1941 Ross, J. S.: Electroencephalographic Findings During and After Acute Encephalitis, J. Nerv. & Ment. Dis. **102:** 172-182 (Aug.) 1945.

SUMMARY

Abnormalities in the electroencephalogram were found in a large proportion of patients following poliomyelitis. These changes were much more common in children than in adults. Partial or complete recovery was observed in some patients during a period of five to eight months following the acute illness. In others there was evidence of persistent abnormality in the electroencephalogram for at least five to fifteen years. It is concluded that cerebral involvement in poliomyelitis is much more common as judged by changes in the electroencephalogram than would be apparent from clinical observations alone. The possible significance of these findings in relation to disturbances in mentality or behavior was discussed.

ABSTRACT OF DISCUSSION

Dr. M. G. Peterman, Milwaukee: I am glad that Dr. Goldbloom was cautious in his interpretations of the tracings which he presented Ever since Heine first described poliomyelitis in 1840 as a definite, distinct clinical entity, investigators of this disease have considered it polioencephalitis rather than simply poliomyelitis; in fact, since Harbeck and Scheel in 1907 described the changes which they considered typical of this disease, namely, involvement of the meninges and the cerebral cortex, we have come to consider the disease as a generalized infection involving the entire nervous system. Electroencephalographers have considered it impossible to obtain satisfactory tracings in patients with fever. It is well that there was in interval between the acute phase of the disease and the tracing. I believe that it is significant that the authors observed the greatest changes in the first week after the onset of the disease and that most of these "changes" disappeared subsequently. I believe that those "changes" were extraneous and not specific. Poliomyelitis is the same disease in adults as it is in children, and Ebaugh could find questionable changes in only 2 of 16 adults. I feel that there have not been any consistent changes demonstrated here which could be attributed to any specific infectious disease. Assuming that all the patients described had definite poliomyelitis in spite of some of their spastic rigidities, spastic hemiparesis, etc., I see no reason why a certain percentage of them could not have had cerebral dysrhythmia before the poliomyelitis as an entirely unrelated phenomenon. The tracings which I have seen this afternoon have not been convincing. I see variations in tracings every day, particularly in children under 10 years of age. The only specific findings shown here are the slow waves, the cerebral dysrhythmia, which is typical of a convulsive disorder. It is difficult to interpret changes such as those described here. The only positive specific changes which we recognize now are those described originally by Berger and further elaborated on and substantiated by the Gibbs in the various types of epilepsy. Hyperventilation for only two or three minutes is usually not sufficient to produce or precipitate the changes desired in children. The patient labeled "T.C." who had an abnormally slow rhythm could very well have had epilepsy, inasmuch as she had a convulsion or a history of convulsions before she had poliomyelitis, and her sibling could very well have had abnormal changes due also to a congenital cerebral dysrhythmia. I agree with Dr. Goldbloom that this is an extremely interesting study, but I should be loath to draw any conclusions on the changes which he has presented.

Dr. David Bodian, Baltimore: Three features of the pathologic picture of poliomyelitis must be clearly understood before one can make a satisfactory correlation of clinical symptoms, abnormal electroencephalograph findings and the pathologic substrate of both. The first is that all the evidence available shows conclusively that every case of poliomyelitis, human or experimental, exhibits lesions of the brain. The second is that in human poliomyelitis, as well as in most experimental cases, some parts of the brain rarely, if ever, are affected. These include primarily the entire cerebral cortex except for the motor areas, the corpus striatum, except for the globus pallidus, and the cerebellar cortex except for the vermis; in other words, the brain stem as far forward as the hypothalamus and thalamus bears the brunt of the cerebral pathologic changes in poliomyelitis. The third important generality is that great variation occurs in the severity of the pathologic involvement of most centers of the central nervous system, but the same centers are generally involved in greater or lesser degree in almost all cases. It is interesting that pathologic studies and electroencephalographic studies seem to agree in suggesting the brain stem as the primary source of electroencephalographic abnormalities. For example, the paper under discussion suggests a tendency for patients with involvement of the cranial nerve to have a higher incidence of electroencephalographic abnormality than patients with spinal or nonparalytic involvement. Our cases show a definite correlation of severe involvement of the cranial nerve with severe involvement of other brain stem centers, but not with unusual cortical abnormality. I am not competent to judge critically the evidence from the electroencephalograph regarding the organic basis of personality changes in poliomyelitis. Such changes can hardly be the result of damage to the cerebral cortex, since lesions are conspicuously absent from most of the cortex. Severe lesions are present, however, in the hypothalamus and thalamus in some of our cases, and in these cases general involvement of the brain stem is severe. If injury to these centers can contribute to emotional disturbances, then perhaps one can account for a correlation of electroencephalographic abnormality with severe behavior disturbances. I am glad to note, however, that the authors point out that complex factors must influence any behavior changes which follow poliomyelitis infection. Although the younger age group in general showed a tendency toward greater intensity of pathologic reaction in the brain stem, I am not inclined to attribute great significance to such a finding in our relatively small series of cases.

Dr. J. A. Toomey, Cleveland: In 1925 we demonstrated (Toomey, J. A. and Lipson, H. A., Poliomyelitis: Report of a Case, *Am. J. Dis. Child.*, 41:1389, 1931) that severe pathologic changes, present in this disease at times, often bore no parallel relation to the symptoms exhibited. Notwithstanding massive destruction and that but a few of the anterior horn nerve cells were present and that gliosis was found at autopsy, during life the use of the muscles of both arms and legs was only slightly modified in the left gastrocnemius in this case. This was the first demonstration in the human being, to my knowledge, that extensive pathologic changes may be unaccompanied by clinical symptoms and, occurring as it did in a patient who recovered from poliomyelitis but who died from another disease but a short time afterward, it presented irrefutable evidence as to the truth of this assertion. The motor function may not be impaired—the muscles may even perhaps be hyperactive—and the patient merely show signs of encephalitis, though it is more common for him to have encephalitis together with weak or paralyzed muscles. Encephalitis unaccompanied by complicating involvements of the bulb or other part of brain or cord occurs. I have even seen proven cases of involvement of basal nuclei with subsequent recovery from this disease. I have had many patients with complicating encephalitic signs, but in over twenty-five years of experience with this disease I have never seen any modification of the higher faculties should the patient recover. Were he normal in intelligence before, he was that afterward; if a moron before, a moron afterward. I do not doubt that electroencephalographic changes occur; they occur with any infectious disease. Such personality changes that occur—and they do occur, as the speaker states—were the results of the patient's psychic reaction to crippling disabilities, and to environmental difficulties. Although the significance of electroencephalographic changes must be interpreted with caution, and that some form of encephalopathy might have existed prior to the disease, as the authors state, it would be stretching a point to conclude that all these patients had some prior trouble. I would agree with the reasoning of the essayists and would also be tempted to consider the electroencephalographic changes evidence of cerebral disease, but I still wonder whether the postdisease behavior problems are due to things other than cerebritis. I do not see how one can tell without further study and data. The variance between young and old is intriguing.

DR. MEYER A. PERLSTEIN, Chicago: In the interpretation of electroencephalograms in children there are many pitfalls to be avoided. One does see "abnormal" patterns (i.e., as compared to adult patterns) more frequently in children; in other words, the abnormal for adults is normal for children, and the younger the child, the more "abnormal" appearing its normal electroencephalographic patterns are. Of course, Dr. Goldbloom has fortified himself with an experienced electroencephalographer, so that we cannot criticize the interpretations of the tracings shown. Apparently the controls are the patients themselves. And if it is a fact that the waves and rhythms classified as "abnormal" by Dr. Goldbloom disappeared after four, five or six or eight months, then we might assume that they probably were normal before the onset of the disease. However, since such transitory abnormalities in the electroencephalogram may follow any generalized infection, it is questionable that there is anything specific about the changes following poliomyelitis. It is also doubtful that the behavior disturbance can be due to anything organic, because if it were so one would expect to get more such disturbances in bulbar forms or involvements of the cranial nerve than in the spinal forms. To the contrary, I have seen the greatest disturbance in behavior where the crippling was greatest. In other words, it was definitely functional, secondary to the degree of motor disability and not to the site of lesion. Likewise, one might say that the obesity that often occurs in these children following the disease might be on an organic encephalitic basis. However, here too the obesity seems to occur primarily in those who have involvement in the legs and cannot get around and not in those who have had bulbar or upper extremity involvement. We have done electroencephalograms in 15 of our last series of cases of poliomyelitis, and these were done and interpreted by Dr. Gibbs in Chicago. We found that all of our cases showed normal electroencephalograms except 1. This happened to be in a child aged 15, who showed a paroxysmal pattern typical of petit mal. These abnormalities were not most prominent in the occipital region, as has been described here today. We feel that this child had petit mal which was clinically not evident, but in no way related to her poliomyelitis. The fact that we do not find electroencephalographic abnormalities following poliomyelitis and that Dr. Goldbloom does find them does not necessarily mean that we are in disagreement. It may only signify that there may be different types of epidemics and that in some epidemics there may be more involvement of the cortical areas, or of the subcortical areas, which may involve by their connections the patterns in the cortical area.

DR. ALTON GOLDBLOOM, Montreal, Canada: It is unfortunate, perhaps, that Dr. Jasper and other members of his staff are not here to discuss the criticisms with reference to the interpretation of the electroencephalograms. I can only say that these interpretations were made not only by Dr. Jasper but were independently made, and critically, in accordance with the most severe criteria, by other members of his staff, who came to identical conclusions with reference to their interpretations. It is our intention to continue further investigation to see whether this is a constant phenomenon in poliomyelitis, to see whether it is merely a phenomenon of this particular epidemic, as Dr. Perlstein suggested, and which we considered, and to see whether again in a larger number, as large a number of patients as we can accumulate, there are more easily discoverable changes in behavior which perhaps can be attributed to changes in cerebral pathology as a result of the disease.

TEMPORAL ARTERITIS

Relief of Headache by Injection of Procaine Hydrochoride

A. M. ROBERTS, M.D.†
and
JOHN MARTIN ASKEY, M.D.
Los Angeles

Temporal arteritis[1] is a condition poorly understood, with an unknown etiology, a variable course and an unsatisfactory treatment. The term is a misnomer in that it is now believed to be part of a generalized cranial arteritis.[2] Severe headache is one of the most serious manifestations and often requires opiates for relief for a longer period of time than is desirable. Relief has occurred in many instances following the removal of a segment of the artery, done primarily to obtain a biopsy specimen. Hoyt[3] said, "From a practical standpoint, the most effective treatment seems to be the removal of a segment of the temporal artery." It was felt that this was due to interruption of the periarterial sensory pain fibers and suggested to one of us (A. M. R.) the use of a procaine hydrochloride block of the sympathetic nerve fibers passing along the vessels. The result in 4 instances has been immediate and striking in the relief of pain. Inasmuch as the pain in many instances is prolonged for many weeks or months (the figure), a simple means for relief of the pain is gratifying.

Showing the facies of pain due to constant headache.

REPORT OF CASES

CASE 1.—Mrs. H. L. B., aged 59, was first seen Oct. 21, 1941 in the office. She had been sick for three weeks with an illness diagnosed as "flu." A headache first developed over the top of the head, but in the last week it had become localized on the right side. She lost her appetite and felt tired. The blood pressure was 130 systolic and 80 diastolic; the blood hemoglobin 9.1 Gm. per hundred cubic centimeters; erythrocytes 5,400,000, and leukocytes 8,350, with a normal differential count. Urinalysis (uncatheterized) revealed 8 to 10 pus cells and a few erythrocytes. Her sinuses were examined and considered irrelevant as a cause for her headache. An electrocardiogram revealed left axis deviation but no other significant findings. A week later, October 28, she complained of a constant right-sided headache which never entirely disappeared. She became progressively weaker and was forced to stay in bed. She lost her appetite, lost weight, and complained bitterly of the constant headache, now bilateral but worse on the right side. She took 1 grain (60 mg.) of

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† Dr. Roberts died in April 1947.

From the Medical Department of the Medical School of the University of Southern California.

[1] Horton, B. T.; Magath, T. B., and Brown, G. E.: An Undescribed Form of Arteritis of the Temporal Vessels, Proc. Staff Meet., Mayo Clin. **7**: 700, 1932.

[2] Chasnoff, J., and Vorsimer, J. J.: Temporal Arteritis: A Local Manifestation of a Systemic Disease, Ann. Int. Med. **20**:327, 1944.

[3] Hoyt, L. H.; Perera, G. A., and Kauver, A. J.: Temporal Arteritis, New England J. Med. **225**: 283, 1941.

codeine several times daily for only partial relief. About November 15, the true nature of the condition was suspected. Both temporal arteries were found to be firm cords with exquisite tenderness. One to 2 cc. of procaine hydrochloride was injected around the right temporal artery. This produced relief within two or three minutes. She said that this gave the only relief from the headache that she had had since it began. After the injection, the arteries became soft to the touch, apparently due to prompt vasodilation. The subjective improvement was remarkable. The relief was complete until the following day, when there was a slight return of pain. Injection was made several times with almost complete relief of the surface pain. Injections were also made over the occipital arteries, where there were two points of tenderness. Some headache persisted, however, but not the severe surface headaches which she had had. She described it as a deep intracranial headache not as severe as the peripheral pain but persistent and annoying. On December 12 she was admitted to St. Vincent's Hospital. It was thought that injection of the stellate ganglion might produce vasodilation of any intracerebral arteries which were vasospastic and possibly relieve the headache as had the injection around the temporal arteries. The blood on admission showed 11.6 Gm. of hemoglobin and 3,058,000 erythrocytes. On December 13, 20 cc. of 1 per cent "intracaine" (B-diethylaminoethyl-p-ethoxybenzoate hydrochloride) was injected into the vicinity of the stellate ganglion. Moderate Horner's syndrome was obtained with complete relief of the headache. There was some return in a few days and the injection was repeated. She left the hospital December 21, feeling much better, and since then she has had no return of the headache.

Four Instances of Temporal Arteritis Relieved by Injections of Procaine Hydrochloride

				Arteries Involved					
Case	Age	Condition Before	Fever	Temporal	Occipital	Orbital	Supraorbital	Intracranial	Treatment and Outcome
1	59	Virus infection	+	+	+	0	0	+	Arteritis 6 weeks after onset of fever; 4 periarterial and 2 stellate ganglion injections of 1% procaine gave complete relief
2	25	Acute infection of respiratory tract	0	+	0	0	0	0	Arteritis 4 weeks after headache; complete relief from one periarterial injection of 1% procaine hydrochloride
3	66	Acute infection of respiratory tract	+	+	+	0	0	0	Arteritis 8 weeks after fever; periarterial injection of 1% procaine hydrochloride gave complete relief; recurrence, re-injection, relief
4	75	Acute infection of respiratory tract	+	+	+	0	0	0	Negro; temporal swelling, tenderness for 3 months; complete lasting relief after 3 daily periarterial injections of 1% procaine hydrochloride

Case 2.—Mrs. W. P., aged 25, was first seen at the office March 3, 1942 complaining of a unilateral temporal headache. Her mother had had migraine headaches. The headache had developed February 20 and had followed an attack of severe sore throat diagnosed as acute laryngitis by a physician. She stayed in bed a week, was extremely nervous and said that the headaches were "terrible." The scalp was sore and the headache was always on the right side. She had had one-sided headaches since early youth and, because her mother had a history of sick headache, the diagnosis on the first visit was that of migraine. Temporal arteritis was not suspected. She was given tablets of codeine compound on March 18. She said that her headaches were slightly relieved for about two hours after taking the tablets but that they remained continuous. On March 24, over one month after the onset of the headache, there was found "definite localized tenderness over the right temporal artery." The headache was continuous unless she took the pills every two hours. The tissue around the temporal artery was injected with 1 per cent procaine hydrochloride. Following the injection, there was noticeable relaxation of the artery to the touch and loss of tenderness. Before the injection, the artery could be felt as a firm cord without overlying changes in the color of the skin. There was immediate relief of the headache after the injection. On March 26, the headache had not returned. It was the first relief that she had had since February 20, and the tenderness was gone over the temporal artery. On March 31, she reported no further headache. She had had it continuously from the time she awakened until she fell asleep prior to this relief. She was apparently relieved completely of her headache after one injection. The nausea and loss of appetite that she had had at the time of the headache were gone. She has had no further trouble.

Case 3.—Mr. J. M. M., aged 66, was first seen May 4, 1942 complaining of sharp pain in his forehead and the temples which had developed a month before. Two weeks prior to the development of the headache, he had had a virus bronchitis with general weakness, cough and fever, from which he recovered slowly. Physical examination showed a blood pressure of 106 systolic and 64 diastolic, and a pulse rate of 66. He appeared anemic and the pharynx was slightly inflamed. The blood count showed 9.4 Gm. of hemoglobin, 3,600,000 erythrocytes and 11,250 leukocytes with a normal differential count. Acute temporal arteritis was not suspected. He was given ½ grain (30 mg.) of codeine for the headache. He continued to lose weight and the headache persisted. On May 18, 1943 he was admitted to St. Vincent's Hospital. On May 19, the true condition was suspected. A note then read, "The patient had had a bilateral temporal headache for several months with a dull pulsating pain, at times sharp and stabbing. Examination reveals hard, apparently spastic, temporal arteries with localized tenderness."

A diagnosis of cranial arteritis was made. Injection of both periarterial areas relieved the headache markedly. The patient said it was "like lifting a ton off of my head." That night he slept well for the first time in weeks. The next morning there was only a residual ache, not the throbbing pain. The temporal arteries were not tender and were relaxed. By May 24 the tenderness was all gone. On May 26 there was no return of the temporal headache, but he now complained of tenderness in the left occipital area. An area there was felt pulsating and tender and was injected with 2 cc. of 1 per cent procaine hydrochloride with complete relief. On May 29, there was slight return of tenderness at the left temporal artery. One cubic centimeter of procaine hydrochloride was again injected with immediate relief. It was necessary to make injections over the temporal arteries twice more. Each recurrence of headache was much less severe, however, and was immediately relieved by the injection.

Case 4.—Mrs. A. G., aged 75, a Negro, was admitted to the hospital May 12, 1942, complaining of severe, sharp, shooting pains in the head for three months. Three months before she had had a severe cold with rhinitis and bronchitis. Three weeks later, pain and swelling developed in both temporal areas. On admission, her temperature was 100 F., her pulse rate 100 and her blood pressure 160 systolic and 95 diastolic. On examination, there was swelling in both temples, which were tender, pulsating and nodular. A harsh rasping apical systolic murmur was audible. On May 15, three days after admission, 1 per cent solution of procaine hydrochloride was injected around both temporal arteries with pronounced relief. There was slight return of tenderness and pain, so the following two days procaine hydrochloride was injected over both temporal arteries. Because of the tender left occipital artery, on May 17 an injection was also made on the left side. There was complete relief of her headache. On May 22, a genitourinary infection developed for which sulfadiazine was administered;

this relieved her in a few days. On June 2 all evidence of the arteritis was gone. There was no swelling or tenderness. On June 29 she was dismissed.

COMMENT

The immediate relief of the headache by the injection, with a simultaneous change from hardened, tortuous vessels to soft relaxed ones, suggests an acute vasospastic condition. The occurrence of the condition in a woman aged 25 suggests this etiology rather than that it is a concomitant feature of degenerative arterial changes, the usual belief.

Meyers and Lord[4] recently reported the condition in a woman aged 22 years. The development of the arteritis in these 4 instances following acute infections is also evidence of an infectious origin. Although relief of the headache can be obtained by removal of a segment or excision of the artery, there often is multiple involvement of cranial arteries, obviating such treatment. Multiple injections of procaine hydrochloride, however, are feasible and simple.

SUMMARY

Four instances of cranial arteritis involving chiefly the temporal arteries are described. The headaches were gratifyingly relieved by periarterial injections of procaine hydrachloride. This simple procedure is recommended for control of the pain.

ADDENDUM

Since this article was prepared, an article by Dr. S.B. Nadler entitled "Paroxysmal Temporal Headache", which appeared in the September 29, 1945 issue of THE JOURNAL, has been called to our attention. He obtained relief in paroxysmal temporal headaches of the type relieved by pressure over the temporal artery by injecting procaine hydrochloride. This condition is of course different from temporal arteritis. Relief by procaine was considered an indication for ligation and section of the affected temporal artery. In a letter to THE JOURNAL, December 8, 1945, Dr. D.F. Newman of West Palm Beach reported relief by injection alone. Injection of procaine therefore appears to be of value in several types of headaches.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

The Council has authorized publication of the following statement.

Austin Smith, M.D., *Secretary*.

"TEROPTERIN " AND "DIOPTERIN " IN THE TREATMENT OF CANCER

Recent newspaper and periodical publicity regarding "teropterin" stemming from a report by Farber and his co-workers[1] has again raised the hopes of many sufferers from cancer that a "cure" for this disease has been found. Because of the inquiries received by the Council on Pharmacy and Chemistry, the existing evidence regarding the actions of "teropterin" and an allied derivative, "diopterin" is here reviewed.

Chemically, both "teropterin" and "diopterin" are closely related to folic acid (pteroylmonoglutamic acid); "teropterin" is pteroyltriglumatic acid, and "diopterin" is pteroyldiglutamic acid. Leuchtenberger and his associates[2] observed that "folic acid concentrate" and crystalline Lactobacillus casei factor inhibited tumor growth in mice with transplanted sarcoma 180. In another publication[3] these authors reported inhibition of spontaneous mammary cancer in mice with folic acid.

Farber and his co-workers[1] published the first clinical report on the use of "teropterin" and "diopterin" in the treatment of human cancer. They administered these preparations to 90 patients with terminal cancer and noted in some instances a subjective feeling of improvement on the part of the patients and a diminution in pain. No definite beneficial action on the tumors was reported. The authors were chiefly concerned with reporting lack of toxicity due to the drug and noting the subjective effects.

Klainer[4] has reported a case of metastatic adenocarcinoma of the breast treated with "teropterin," but he stated that the reported improvement in the metastatic lesions could not be ascribed to "teropterin," because the patient was also subjected to oophorectomy and injections of testosterone propionate, both of which are known to produce favorable effects on such metastatic lesions.

Lehv, Wright, Weintraub and Arons[5] have described the results of administration of "teropterin" to 20 patients with cancer. These patients were treated for from one to three months with "teropterin" exclusively. Of the objective changes observed, the only one of significance was the tendency to reduction of abnormally high alkaline and acid phosphatase values. Subjectively, relief from pain was observed in most of the patients, and in several instances opiates could be reduced or eliminated entirely. The patients reported a sense of well-being and a state of mental alertness. Five of the patients had died at the time the report was prepared. No objective changes in the malignant lesions were reported.

Meyer[6] has reported that in 7 patients with chronic lymphocytic leukemia, 2 with chronic myeloid leukemia, 2 with multiple myeloma and 1 with acute lymphoblastic leukemia treated for four to ten weeks with "teropterin," no alteration in the blood picture was noted, although some relief from pain and better appetite were recorded.

News stories which have appeared have hinted at possibilities far beyond those set forth in the recorded observations of these investigators. Since it appeared that not all of the available information had yet been published, the manufacturer of these folic acid derivatives was asked if he had information which could be made available to the Council for review. The firm furnished such information, and part of this report is based on data so obtained.

Both "diopterin" and "teropterin" were distributed to at least two hundred and twenty-five investigators, many of whom have reported on only 1 or 2 cases. Data on 154 patients treated with "teropterin" and on 121 patients treated with "teropterin" and "diopterin" which have been furnished the Council form the basis of this report. Since, on the basis of the present available data, there is no significant difference in the results of "teropterin" medication as compared with "diopterin" medication, the results will be combined in this report. It is stated that in 31.6 per cent (87 cases) general objective improvement was noted by the attending physician. Unfortunately, many physicians did not record what constituted "general objective improvement" and it is possible that some of this may have been wishful thinking, particularly in view of the fact that several of the patients reported to have "general objective improvement" died within a few weeks.

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[1] Farber, S.; Cutler, E. C.; Hawkins, J. W.; Harrison, J. H.; Peirce, E. C., and Lenz, G. G.: Science, 106:619 1947.

[2] Leuchtenberger, C.; Lewisohn, R.; Laszlo, D., and Leuchtenberger, R.: Proc. Soc. Exper. Biol. & Med., 55:204, 1944.

[3] Leuchtenberger, R.; Leuchtenberger, C.; Laszlo, D., and Lewisohn, R.: Science, 101:46, 1945.

[4] Klainer, M. J.: Tr. New York Acad. Sc., 10:71, 1948.

[5] Lehv, S. P., Wright, L. T.; Weintraub, S., and Arons, O.: Tr. New York Acad. Sc., 10:75, 1948.

[6] Meyer, L. M.: Tr. New York Acad. Sc., 10:99, 1948.

Certain objective changes in the patient's condition were reported, however, and among these were changes in appetite, weight and anemia. Improved appetite was seen in 31 per cent of the patients, gain in weight in 14.5 per cent, loss of weight in 30.9 per cent, improvement in anemia in 5.1 per cent and increased anemia in 4.7 per cent. It would not be surprising to see some correction of anemia in view of the close relationship of these compounds to folic acid. That more patients failed to improve may be due to two factors: severity of the disease and short duration of medication. The improvement in appetite may, in many instances, be due to psychic suggestion and may be more apparent than real, as suggested by the fact that far fewer patients showed a measurable gain in weight. It should be remembered, however, that many patients with cancer have prodigious appetites but fail to gain weight.

Emphasis has been laid on the reported analgesic action of "diopterin" and "teropterin." If these drugs have a significant analgesic action, much of the reported subjective improvement in patients may be attributable to this effect; of the patients in whom pain was a significant factor, 38 per cent obtained some relief. In this connection, "teropterin" appeared to be significantly superior to "diopterin," since approximately 50 per cent of those receiving "teropterin" reported relief from pain as against 23 per cent receiving "diopterin." Some of the reported relief may have been of psychic origin, but there is little doubt that much of it was real since many of the patients receiving opiates were maintained comfortably on greatly reduced dosage or with complete withdrawal of other analgesic medication. It should be pointed out, however, that relief from pain in 50 per cent of the patients is far inferior to the percentage of relief seen following the administration of adequate doses of the opiates alone or in conjunction with other potent analgesics. On the other hand, "teropterin" may offer advantages because of the absence of side reactions and lack of hypnotic or sedative effects.

Of greatest interest are the reported actions of these compounds on the tumors and their metastases. Of significance, therefore, is the observation that in 81.1 per cent of the patients, no change was noted in either the primary tumor or the metastatic lesions. In 13.1 per cent, regression of the lesions was reported. However, it should be noted that many of these patients were receiving or had received other forms of therapy such as roentgen rays or radium, and it is not possible to attribute the regression to the drug. In other cases, the criteria for determining regression were not stated, or the location of the lesions did not permit an accurate estimation of changes in size. In the few cases which have come to autopsy, no significant effects on the tumor which could be attributed to the drug have been noted.

It is perhaps too early to conclude that either "teropterin" or "diopterin" has an action or, on the other hand, is ineffective in cancer. Too few cases have been observed, and the study period has seldom been more than a few months, the majority of those on whom information is available receiving less than eight weeks' treatment and observation. Certainly, no critical appraisal of the effects of an agent in cancer can be made in such a brief period; five years is the usually accepted required period of observation.

In view of the lack of conclusive evidence contained in the data reported to date with these compounds, the Council believes it advisable to emphasize again the need for carefully examining publicity on the results of medical research that has been written for public interest and thus designed to have news appeal. In the minds of many physicians as well as members of the general public the impression has been created that "teropterin" has been shown to have a definite anticarcinogenic effect. The facts available do not yet support this view; even if the actions of the drug had been proved to be more dramatic than those reported here, much more critical investigative work would seem necessary before hope for a new lead to a cure can be raised.

The Council also believes that some consideration should be given to the manner in which new agents believed to be useful in the treatment of cancer are investigated. The indiscriminate distribution of such drugs to physicians regardless of the facilities with which they have to work and their competence in the particular field under investigation actually retards scientific progress, is wasteful of material and is not productive of valuable information. The investigation of new remedies should be entrusted to those who are competent by training and experience to conduct critical clinical trials, who have facilities adequate to study the patients receiving the preparation and who will, in a reasonable time, treat sufficient numbers from which statistically valid data may be obtained. Frequently, a manufacturer who is still studying the possibilities of a new drug is besieged with requests for it when the first favorable report appears. This creates an awkward situation: The manufacturer may not wish to risk offending the inquiring physician by refusing the drug, but he knows that if the product fails to elicit the desired response he may be blamed; and yet he is also blamed if he refuses the drug. The only solution is for the medical profession to wait until the product has been proved safe and efficacious and for the manufacturer to stand steadfast in his refusal to give it to any but qualified investigators. In the meantime, the manufacturer has been distributing pamphlets by mail and at exhibits in medical, hospital and nurses' conventions.

The Therapeutic Trials Committee has as one of its functions the arrangement of clinical trials of new agents. The work of this Committee in organizing a collaborative study on androgens and estrogens in mammary cancer already is setting a pattern for investigations of this type. Such investigations, while time consuming, are not as time consuming as piecemeal investigation, and, furthermore, are so exhaustive because of collaboration by experts that the problems and solutions are clearly defined at the end of the investigation.

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

CETYL PYRIDINIUM CHLORIDE.—Ceepryn-Merrell.—The monohydrate of the quaternary salt of pyridine and cetyl chloride.—C H ClNO. M. W. 357.99

Actions and Uses.—Cetyl pyridinium chloride, a quaternary ammonium salt, is a cationic detergent that possesses useful surface active as well as antiseptic properties. It is employed in aqueous solution or tincture in appropriate dilutions for topical application in the preoperative disinfection of the intact skin and the prophylactic antisepsis of superficial minor wounds. It is also useful by topical application or irrigation for therapeutic disinfection of accessible mucous membranes and more extensive wounds or infections of the underlying tissues. It may also be used to preserve sterility of instruments during storage.

Cetyl pyridinium chloride is subject to the shortcomings of other cationic detergents employed as germicides in that its action is opposed by anionic detergents such as ordinary soap, may be reduced in the presence of serum and tissue fluids and is not reliable against clostridial spores.

Dosage.—For preoperative preparation of the intact skin, a 1:100 aqueous solution may be used alone for scrubbing for a period of five to ten minutes; when the conventional soap-alcohol-ether-germicide method is to be employed, 1:500 or 1:1,000 tincture dilutions may be used as the germicide if soap is thoroughly removed before application. Similar dilutions of the tincture or a 1:1,000 aqueous solution may be used for topical application to minor lacerations and abrasions. For disinfection of delicate mucous membranes or extensive areas of exposed tissue, from 1:5,000 to 1:10,000 solutions should be used.

Tests and Standards.—

Cetyl pyridinium chloride occurs as a white powder possessing a slight odor. It melts within the range 77 to 83 C. It is very soluble in water, alcohol and chloroform and only slightly soluble in benzene and ether. The pH of a 1 per cent aqueous solution is 6 to 7 as determined by the use of indicators (glass electrode instruments give variable results). The surface tension at 25 C. of a 0.1 per cent aqueous solution is about a 1 per cent aqueous solution, about 41.40; and a 10 per cent aqueous solution, 38.15

Dissolve 0.1 Gm. of cetyl pyridinium chloride in 50 cc. of water. Add 1 cc. of silver nitrate solution to a 5 cc. portion of the solution: a white precipitate forms, which is soluble in strong ammonia solution.

Heat gently about 0.25 Gm. of cetyl pyridinium chloride contained in a test tube until the substance melts and a brown color develops: the odor of pyridine is readily detected.

Add 5 cc. of about one hundredth molar potassium ferricyanide to 5 cc. of the cetyl pyridinium chloride solution: a yellow precipitate forms. Add 1 cc. of a saturated potassium thiocyanate solution to a 1 cc. portion of the cetyl pyridinium chloride solution: a white gelatinous precipitate forms. Add 1 cc. of saturated picric acid solution to 1 cc. of the cetyl pyridinium chloride solution: a yellow precipitate forms.

Weigh, accurately, about 0.5 Gm. of cetyl pyridinium chloride. Dry to constant weight in a vacuum over phosphorous pentoxide: the loss in weight is not less than 4.5 per cent and not more than 5.5 per cent. Ash the dried sample: the weight of the residue is not more than 0.2 per cent.

Weigh, accurately, about 0.25 Gm. of cetyl pyridinium chloride. Transfer to a 100 cc. volumetric flask. Add 5 cc. of buffer solution (260 Gm. of sodium acetate and 250 cc. of 36 per cent acetic acid, mixed with water to make 1 liter). Add 50 cc. of one hundredth molar potassium ferricyanide. Dilute to the mark with water, mix, allow to stand one hour and filter, discarding the first 15 cc. of the filtrate. Add 5 cc. of 10 per cent potassium iodide solution to a 50 cc. aliquot of the filtrate in an iodine flask. Add 10 cc. of hydrochloric acid and allow to stand for one minute. Add 10 cc. of 10 per cent zinc sulfate solution and titrate with one hundredth normal sodium thiosulfate, using starch T.S. near the end of the titration. Each 1 cc. of one hundredth normal sodium thiosulfate is equivalent to 0.01074 Gm. of cetyl pyridinium chloride monohydrate: the cetyl pyridinium chloride monohydrate content is not less than 97 per cent or more than 103 per cent.

WM. S. MERRELL CO., CINCINNATI

Solution Ceepryn 10 per Cent Concentrated: 180 cc. and 3.84 liter bottles. An aqueous solution containing 10 Gm. per hundred cubic centimeters of cetyl pyridinium chloride and 8 Gm. per hundred cubic centimeters of monobasic sodium phosphate for the preparation of solutions and tinctures for external use.

Tincture Ceepryn 1:200 (Tinted): 120 cc., 480 cc. and 3.84 liter bottles. Contains 0.5 per cent of cetyl pyridinium chloride in a tincture medium of 50 per cent ethyl alcohol by volume and 10 per cent acetone by volume.

Tincture Ceepryn 1:500 (Tinted or Untinted): 120 cc., 480 cc. and 3.84 liter bottles. Contains 0.2 per cent of cetyl pyridinium chloride in a tincture medium of 50 per cent ethyl alcohol by volume and 10 per cent acetone by volume.

Tincture Ceepryn 1:1,000 (Tinted): 120 cc., 480 cc. and 3.84 liter bottles. Contains 0.1 per cent cetyl pyridinium chloride in a tincture medium of 50 per cent ethyl alcohol by volume and 10 per cent acetone by volume.

Solution Ceepryn 1:1,000 (Isotonic): 480 cc. and 3.84 liter bottles. Contains 0.1 per cent cetyl pyridinium chloride in distilled water made isotonic by addition of 0.26 Gm. of monobasic sodium phosphate and 1.43 Gm. of disodium phosphate per hundred cubic centimeters.

U. S. patent 2,295,504. U. S. trademark 398,185.

AMINOPHYLLINE--U.S.P. (See New and Nonofficial Remedies 1947, p. 305).

The following dosage forms have been accepted:

S. E. MASSENGILL COMPANY, BRISTOL, TENN.

Tablets Aminophylline: 0.1 Gm. and 0.19 Gm.

KREMERS-URBAN CO., MILWAUKEE.

Tablets Aminophylline. 0.1 Gm. and 0.2 Gm.

Solution Aminophylline with Benzyl Alcohol 2 per cent: 0.24 Gm. 10 cc. ampuls; 0.48 Gm. 2 cc. and 20 cc. ampuls.

PENICILLIN (See New and Nonofficial Remedies 1947, p. 144).

The following dosage forms have been accepted:

BRISTOL LABORATORIES, INC., NEW YORK.

Crystalline Penicillin G Sodium in Oil and Wax (*Free Flowing*): 300,000 units per cc. suspended in peanut oil containing 4.8 per cent (W/V) white wax U.S.P., 1 cc. cartridges and 10 cc. vials.

LEDERLE LABORATORIES DIVISION, PEARL RIVER, N. Y.

Crystalline Penicillin G Sodium (*Buffered*): 100,000, 200,000 and 500,000 unit vials with sodium citrate U.S.P. as a buffer.

COMMERCIAL SOLVENTS CORPORATION, NEW YORK.

Crystalline Penicillin G Potassium: 1,000,000 units, 50 cc. vials.

Crystaline Penicillin G Potassium in Oil and Wax (*Free Flowing*): 300,000 units per cc., 10 cc. vials.

E. R. SQUIBB & SONS, NEW YORK.

Troches Penicillin Calcium: 5000 units.

RIBOFLAVIN (See New and Nonofficial Remedies 1947, p. 511).

The following dosage form has been accepted:

THE WM. S. MERRELL CO., CINCINNATI.

Tablets Riboflavin: 5 mg.

DIETHYLSTILBESTROL (See New and Nonofficial Remedies 1947, p. 347).

The following additional dosage form has been accepted:

E. S. MILLER LABORATORIES, INC., LOS ANGELES.

Solution Diethylstilbestrol in Oil with Benzocaine 2 per cent: 0.5 mg. per cc., in sesame oil with Benzocaine 2 per cent, 1 cc. ampuls. Preserved with cresol 0.5 per cent

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SATURDAY, JUNE 19, 1948

EDITORIAL ANNOUNCEMENT

The absence of the compositors from their work continues. This issue of THE JOURNAL has been prepared in part by the use of *Vari-Typer* machines.

ROLE OF DIETARY PROTEIN IN FORMATION OF HEMOGLOBIN

Until recently the fact that an adequate dietary intake of protein is essential for normal formation of hemoglobin has been assumed without definite proof. The basis for such an assumption is, of course, the fact that hemoglobin is a protein and hence must be ultimately derived from the protein of the diet. This logical conclusion has been established with some difficulty, however, because of the interconvertibility of the various body proteins and because formation of hemoglobin has a "high priority" for any protein available for metabolism. Rather prolonged and drastic dietary restriction of protein is therefore necessary before formation of hemoglobin is decreased and a demonstrable anemia results. This fact has been clearly demonstrated by Whipple and his collaborators[1] in the dog and by several investigators in the rat.[2] As an extension of this thesis Wayne University investigators[3] have obtained evidence that not only the quantity but also the quality of dietary protein affects formation of hemoglobin. The feeding of a protein deficient in one of the essential amino acids, isoleucine, for example, resulted in the development of a mild chronic anemia, whereas the feeding of the same amount of a protein, lactalbumin, containing adequate quantities of all the eseential amino acids supported normal hemopoiesis. Furthermore, regeneration of hemoglobin after hemorrhage was much less active in animals fed the qualitatively deficient protein than in animals fed lactalbumin. Supporting evidence has been obtained by other investigators, who have shown that a dietary deficiency of certain other essential amino acids, including lysine and tryptophane, limits formation of hemoglobin in the rat. This convincing array of experimental evidence led to the conclusion[3] that "a combination of amino acids in as yet undertermined proportions is needed for the synthesis of the hemoglobin molecule "and to the emphasis on "both the quality and quantity of dietary protein for hemopoiesis."

The essential role of dietary protein in the synthesis of the porphyric portion of the hemoglobin molecule has lately been demonstrated. Isotopically labeled nitrogen of glycine, administered orally to human subjects, appears in the hemin prepared from the subject's red blood cells,[4] and the feeding of a diet low in protein to rats decreases formation of porphyrin as manifest by a decrease in the fecal excretion of protoporphyrin.[5]

Recent studies indicate that the experimental observations cited have practical clinical applications. Following blood loss in human subjects, regeneration of hemoglobin is more rapid if the diet contains generous amounts of protein.[6] Currently, Wintrobe and his co-workers[7] have suggested that the anemia of infection may result from the lack of protein for hemoglobin formation due to the negative nitrogen balance found in this condition.

INTRAVENOUS NUTRITION

The parental administration of nutrients has proved of vital importance in medicine. Dextrose, salt and water given intravenously have long been a dependable device for providing fluid, electrolyte and energy; to this mixture more recently proteins or protein derivatives such as casein digests or mixtures of amino acids have been added, thus amplifying the adequency of the nutrition. In peritoneal lavage, solutions resembling the electrolyte pattern of blood are injected into the body cavity. Preparations of its fat-soluble vitamins are available for intramuscular injection, though their utilization by this route is less complete than when given orally. Currently, one of the drawbacks of intravenous alimentation is the inability to supply the required calories; the addition of fat to the infusion mixture would tend to remedy this deficiency.

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[2] Orten, A.U., and Orten, J.M.: J. Nutrition 26: 21 1943. Metcoff, J., Favour, C.B., and Stare, F.J.:J. Clin. Investigation 24: 92, 1945.

[3] Orten, J.M., and Orten, A.U.: J. Nutrition 30:137. 1945; 31:765, 1946.

[4] Shemin, D., and Rittenberg, D.: J. Biol. Chem. 159: 567, 1945.

[5] Orten, J.M., and Keller, J.M.: J. Biol. Chem. 165: 163, 1946.

[6] Leverton, R. M., McMillan, T. J., and Peters, M.: J. Am. Dietet. A. 20: 747, 1944.

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Studies have been reported recently indicating the satisfactory use of fat for intravenous alimentation in experimental animals. Refined coconut oil emulsions stabilized with purified phospholipids from soybeans[1] were prepared by using a high pressure homogenizer; all the lipid particles were less than 2 microns in diameter, and most of them were beyond the resolving power of the light microscope.[2] Furthermore, these preparations were unchanged during autoclaving. They were injected intravenously into dogs in amounts approaching the usual oral intake of fats. The 30 per cent emulsion supplied approximately 3 calories per cubic centimeter of preparation and was as well tolerated as was the 15 per cent emulsion used earlier.[3] The plasma fat showed a definite increase to approximately twice the normal value during the intravenous administration.[3] With the cessation of injection there was a prompt fall in the plasma fat to pretreatment level within one hour, indicating that the lipid rapidly left the circulation. The granulomatous lesions in the lungs observed in the early experiments were eliminated after further fractionation of the soybean lecithin stabilizer. Animals have been given the improved emulsion intravenously for as long as eighty-four days without untoward results.[4]

With the successful incorporation of fat into mixtures for intravenous administration. the possibilities for parenteral alimentation are greatly enhanced. Not only can the three major organic food materials be provided along with salts, vitamins and water, but the high caloric value of fats permits the approach to the body's needs for energy. Once the foregoing procedures have been satisfactorily adapted to clinical needs, an additional important contribution of nutrition to medicine will have been recorded.

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[2] Geyer, R.P.; Mann, G.V., and Stare, F.J.: J. Lab. & Clin. Med. 33:153, 1948.

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Current Comment

ONE STAGE RESECTION AND ANASTOMOSIS OF THE COLON

The pendulum of surgery of the large intestine, according to Hinton,[1] has returned to primary resection with primary anastomosis, with or without a complementary ileostomy or colostomy. The early experiences with this method were discouraging. Billroth, in an analysis of 17 patients operated on by the one stage method, reported a mortality of 60 per cent. The exterioization method first practiced by Heinecke, by Paul, and by Bloch, and made popular by von Mikulicz, reduced the mortality from 60 per cent in the material of Billroth to 16.6 per cent in the cases reported by von Mikulicz. The multiple stage exteriorization operation or one of its modifications is now considered the operation of choice for resection of the colon at all levels, excluding the rectum. Despite its many advantages, especially in cases of obstruction of the bowel, the method presented certain definite disadvantages. Multiple operations, according to Hinton, mean multiple risks. Other objections are high incidence of complications, such as wound disruption, wound infection, persistent fistulas and postoperative hernias. Convalescence and hospitalization are prolonged; the artificial anus is an annoyance. The sole argument of low mortality rate following the multiple stage operation has been recently challenged by the reports of a number of surgeons who have been performing the one stage resection with a primary anastomosis with or without a primary colostomy or ileostomy. Thus Gibbon and Hodge[2] reported a mortality of only 14 per cent in their own material and in that of MacFee, Wilkie and Stone and McLanahan, representing a total of 246 patients operated on by the primary aseptic colonic resection. The one stage resection is advocated only for the patient who is not suffering from obstruction of the bowel. Babcock and Bacon,[3] as well as others, considered that in such a patient a primary proximal colostomy or ileostomy is not necessary. Hinton and Localio report 26 consecutive colonic resections involving the various regions of the colon above the peritoneal reflection performed in one stage without a proximal colostomy or ileostomy with a mortality of 3.8 per cent. The striking improvement with the one stage method was made possible not so much by the refinement of the technic of bowel anastomosis as by the recent advances in the preoperative and postoperative care of the patient. Among these should be mentioned correction of the fluid and electrolyte balance, transfusion of whole blood for anemia, correction of hypoproteinemia and of vitamin deficiencies. The preoperative and postoperative administration of succinyl sulfathiazole tends to render the bowel more or less aseptic. The use of the Miller-Abbott tube or the Levine tube aids in keeping the bowel deflated. The consensus seems to be that one stage resection is a safe procedure. Recent reports by Waugh[4] give a mortality rate of 4 per cent in 50 consecutive patients after primary resection of lesions of the left half of the colon; Dixon[5] reports a mortality rate of 2.4 per cent in 41 patients, and Wangensteen[6] a mortality rate of 1.6 per cent for 60 resections for lesions of the colon and the rectosigmoid.

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[2] Gibbon, J.H. Jr., and Hodge, C.C.: Aseptic, immediate Anastomosis Following Resection of the Colon for Carcinoma, Ann. Surg. 114:535-552 (Oct.) 1941.

[3] Babcock, W.W., and Bacon, H.E.: Operative Treatment of Cancer of the Large Bowel Without Colostomy, Arch. Surg. 45:253-264 (Feb.) 1943.

REAGINS IN NASAL SECRETIONS

Nasal secretion has been suspected by numerous clinicians as an important factor in the mechanism of respiratory allergies. Samter and Becker[1] of the Allergy Unit, University of Illinois, tested the reagin content of nasal secretions in 10 ragweed-sensitized patients, two months after the ragweed season, using as controls nasal secretions from nonallergic persons. Nasal secretions were obtained by inserting a cotton plug saturated with 10 per cent sodium chloride solution into each nostril. Satisfactory response was usually obtained within ten minutes. The secretions thus obtained were passed through a micro-Seitz filter. The resulting cell-free liquid was used for passive transfer tests; 0.1 cc. of the liquid was injected into each of four sites in the left arm of normal persons whose skin tests had previously been negative to ragweed extract. Twenty-four hours later reinjections were given at these sites with 0.02 cc. of ragweed extract. Control tests for sensitivity to ragweed were made on unprepared skin of the same persons. The test showed that the nasal secretions of 7 of the 10 sensitized patients contained demonstrable amounts of ragweed reagin. All nasal secretions from normal persons were negative. Control tests with alder extract were also negative. The reagins thus demonstrated were therefore apparently specific for ragweed. These observations lead to a better understanding of the mechanism of respiratory allergy.

WORLD HEALTH ORGANIZATION

The Congress of the United States has passed and the President has signed a joint resolution which provides for membership and participation by the United States in the World Health Organization. Under the resolution as finally passed, the President designates from time to time to attend any specified session or session of the World Health Organization not to exceed three delegates of the United States and such alternates as may be consistent with the rules of procedure. One of the delegates is designated as the chief delegate. When the United States becomes entitled to designate a person to serve on the Executive Board of the World Health Organization, the President is authorized to designate a representative of the United States by and with the advice and consent of the Senate, and may designate one alternate This representative must be a graduate of a recognized medical school and must have spent not less than three years in active practice as a physician or surgeon. The representative is entitled to be paid at a rate of $12,000 per year and his alternate at $10,000 per year for such periods as the President may specify. The resolution also provides that the contribution of the United States should not exceed $1,920,000 per year and a sum not to exceed $83,000 per year for paying expenses incident to the United States' participation. The resolution also provides that nothing in the constitution of the World Health Organization in any manner commits the United States to enact any special legislative program regarding any matters referred to in the constitution. The American Medical Association has supported participation by the United States in the World Health Organization. The possibilities for the advancement of medical science, for better control of epidemics than has previously been possible, for standardization in many fields of medical service are exceedingly great. Among the three representatives appointed by the United States to attend the first assembly of the World Health Organization is Dr. James R. Miller of Hartford, Conn., a member of the Board of Trustees of the American Medical Association. The other members in attendance at the first assembly will be Drs. Thomas Parran and Martha Eliot. The United States does not attend the first session as a member because of the lateness of action in joining, so that these representatives appear at the first session as observers.

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[4] Waugh, J.M., and Custer, M.D.: Segmental Resection of Lesions Occurring in the Left Half of the Colon with Primary End-to-End Aseptic Anastomosis, Surg., Gynec. & Obst. 81:593-597 (Dec.) 1945.

[5] Dixon, C.F.: Anterior Resection for Carcinoma Low in the Sigmoid and the Rectosigmoid, Surgery 15:367-377 (March) 1944.

[6] Wangensteen, O.H.: Primary Resection (Closed Anastomosis) of the Colon and Rectosigmoid, Surgery 14:403-432 (Sept.) 1943.

[1] Samter, M., and Becker, E.L.: Proc. Soc. Exper. Biol. & Med., 65: 149, 1947.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

June 18, 1948.

Draft Bill Makes Doctors Subject to Special Calls

Final action is expected by the House this week on the draft bill. As passed by the Senate by an overwhelming 78 to 10 vote, the bill would require doctors and dentists, aged 18 through 44, to register and be subject to special calls. Medical men educated at government expense or those who were deferred during the war would be called first. The bill is aimed at bringing up the nation's peacetime forces to a record of 1,936,000 men. It would make most nonveterans, 19 through 25, subject to two years in the ranks. Men with dependents would be deferred. House leaders promised to bring the bill to a vote before the proposed June 19 adjournment.

Development of a Low Cost, Easily Operated Geiger Counter Sought

The Civil Defense Planning unit of the National Defense Department revealed that an urgent need for medical defense against atomic bomb attacks is development of low cost, easily operated geiger counters. They now range from $210 to $1,000 each. They are a prime civilian need to enable civilians to spot lingering, atomic death rays. Only a few of those now in use are considered suitable for detecting the area of a bombed city which had been made unsafe by radioactivity. The Army is now buying a small number of detectors for research and development work. The Civil Defense unit proposes the creation in each state of mobile units, trained and outfitted with instruments to detect radioactive poison left by an atomic bomb or some future atomic development. Officials declare that logical sources of personnel for such units would be doctors, chemistry and physics teachers, x-ray technicians and similar specialists. Training programs have been started through medical organizations, colleges and similar groups.

Capt. Melville J. Aston Heads Naval Medical School

The Navy Department announced that Captain Melville J. Aston has been ordered to command the Naval Medical Center in Bethesda, Md. He has been senior medical officer at the Norfolk Naval Shipyard, Portsmouth, Va.

Congress Approves Increases in Social Security Benefits

Both Houses of Congress approved multi-million dollar increases in Social Security payments to dependent children, the aged and the blind. The bill went to the White House for signature. It adds $184,000,000 annually to benefits received by 3,500,000 needy persons. Legislation increases the federal Social Security contribution to the states by $5 a month for the aged and blind and $3 a month for dependent children. Maximum is $50 for each aged and blind person and $27 for a dependent child. The increase was tacked onto a bill blocking extension of Social Security insurance to some 750,000 persons, chiefly salesman over whom employers do not exercise direct control.

Medical Legislation

STATE LEGISLATION

Kentucky

Bill Enacted.—S. 197 was approved March 29. It provides for the creation and establishment of a division of medical hospitals and related services in the department of health to make a survey of hospital facilities throughout the state and to accept federal funds to assist in the construction of additional needed facilities. The law requires the appointment of an advisory council and the preparation of necessary regulations and standards pertaining to the conduct and operation of hospitals constructed by virtue of the act.

Louisiana

Bills Enacted.—H.Res.6 was adopted May 21. It directs the Committee on Charitable Institutions to visit any and all of the charitable and eleemosynary institutions of the state and to make any necessary recommendations which it deems appropriate. S.Con.Res.4 was adopted May 20. It directs the Department of Institutions to take appropriate action to provide better hospital facilities for the indigent sick and to consider the installation of adequate free ambulance service and the establishment in private hospitals of charity beds on a contractual basis.

Massachusetts

Bill Introduced.—H.2318 proposes that insurers and self-insurers under the workmen's compensation law shall be charged for laboratory and roentgenologic service fees as a part of the reasonable cost of a physician's services.

Bills Enacted.—H.69 has become chapter 270 of the Laws of 1948. It provides that no corporation shall conduct a dental office and no person shall conduct a dental office under any name other than that of the dentist actually owning the practice. S.349 has become chapter 359 of the Laws of 1948. It authorizes medical service corporations to contract with hospital service corporations for the joint or cooperative administration of their affairs.

Missouri

Bill Enacted.—H.482 was approved May 10. It authorizes counties to levy a tax for the purpose of operating or maintaining public county health centers or institutions therein.

New Jersey

Bill Introduced.—A.Con.Res.13 proposes the creation of a committee to investigate and study the subject of licensing and regulating the practice of chiropractic.

Bills Enacted.—A. 101 has become chapter 42 of the Laws of 1948. It authorizes the commitment in the county hospital, or other hospital, of any person who fails to obey the rules or regulations promulgated by the state department of health for the care, prevention or spread of tuberculosis, if such person is an actual menace to the community or the children in his household. A. 137 has become chapter 53 of the Laws of 1948. It authorizes municipalities which have no municipal hospital to make appropriations each year to be applied to the purpose of paying the cost of supporting and maintaining indigent patients in hospitals in the municipality supported by private charity.

Rhode Island

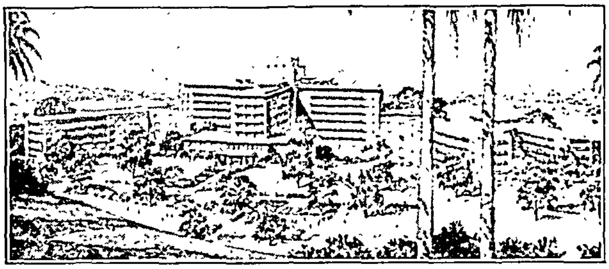
Bill Enacted.—H.698 was approved April 30. It authorizes every superintendent of schools to cause such further examinations to be made of school children as he shall deem necessary for the purpose of guarding against any further outbreaks of infantile paralysis within the schools of any city or town. Such examinations shall include examinations of the legs and pedal extremities of such children by physicians, school nurses or persons qualified to make such examinations.

GOVERNMENT SERVICES

ARMY

THE NEW TRIPLER HOSPITAL

One of the most extensive construction projects ever undertaken in Hawaii is the new 1,500 bed U. S. Army Tripler General Hospital located at Moanalua, Oahu. Situated on the slopes of the Koolau Mountain Range, the hospital will occupy about 365 acres with a magnificent view of the island's southern coastline and thus take full advantage of the prevailing cool mauka winds. The design of the new hospital, the finest in the Army's system, will keep it abreast of the times for years to come. The neuropsychiatric section will be an individual unit where separate recreational, occupational therapy, physical therapy and eating facilities can be provided without the atmosphere common to hospitals caring for patients of this type. Physical reconditioning and recreational facilities have been incorporated here for the first time in a permanent hospital. The pathology department includes an amphitheater seating seventy-five persons for lectures and demonstrations. Since Hawaii lies within the earthquake zone, structural frames have been designed to resist lateral forces greater than those produced by the severest earthquake of record. The main structure is divided into twelve individual units, each structurally isolated from adjacent units. A distinctive feature is the use of aquamedia, or canopies, which afford protection from sun or rain and create a pleasant streamlined impression. With thirteen elevators located at strategic points, the primary flow of all hospital traffic is vertical rather than horizontal, permitting members of the staff and patients to pass quickly from one ward to another. The operating suite contains seven operating rooms, immediately above which is a complete recovery ward where patients can be given the closest attention immediately following surgical intervention. In this section outlets for oxygen piped from a central storage point are available for every bed. Suction outlets are also available for immediate emergency. All patients have access to the sheltered lanai where they may view the magnificent sunsets. At the end of each ward is a large day room which in normal times serves for recreation but which can be used for immediate expansion of the hospital in case of emergency. The Pearl Harbor disaster brought to the attention of this community the critical need for adequate Army facilities which the old Tripler Hospital could not satisfy. In 1942 it was necessary for the commanding general to commandeer three of Honolulu's schools to provide temporary hospital facilities. To relieve this condition Congress in June 1944 authorized construction of the new Tripler Hospital. A pneumatic tube system connects all wards and departments through a central clearing station, by means of which patient histories, laboratory and other reports can be sent instantaneously to any part of the hospital. The main building is fourteen stories high, the tallest building in Hawaii. In addition there are nurses' quarters, officers' quarters, enlisted men's barracks, an orthopedic brace shop and other buildings for special facilities and community service.



The new Tripler General Hospital at Moanalua, Oahu.

REACTIVATE DRUG RESOURCES ADVISORY COMMITTEE

The surgeons general of the Army and Navy and Mr. C. P. Frailey, secretary, American Drug Manufacturers Association, announce that the World War II Drug Resources Advisory Committee has been reactivated. The new committee of fourteen members will hold its first meeting in June, when the status of domestic productive capacity and raw material stocks will be reviewed. Members of the committee serve without compensation and bear all operating expenses. The committee will be maintained as an industrywide function with no connection with any trade organization; it will immediately resume its wartime advisory functions in anticipation of civilian needs as well as those of military service.

ARMY MEDICAL LIBRARY

The Army Medical Library has furnished more than 1,000 volumes of medical literature to libraries in seven different nations to replenish their war-depleted stocks. This was in addition to literature previously furnished by the library to Belgium, China, France, Great Britain, Hungary and Yugoslavia.

In April the library sent twenty-one volumes of the Index-Catalogue to the Institute Superiore de Sanita in Rome to complete their set and deposited series III and IV in Veterinarhogskolans Bibliotek in Stockholm.

AN AUDIOLOGY MEETING

The Army sponsored a meeting in Washington, D.C., June 5, of persons interested in rehabilitation of Army and Navy personnel, Veterans Administration beneficiaries and civilians with impaired hearing. The purpose of the meeting was to evaluate the work being done and to plan a better organized program in the services and in civilian groups. The afternoon was given over to a tour through the Aural Rehabilitation Center at Forest Glen, Md. Among the speakers were Fred W. Kranz of Elmsford, N. Y.; Norton Canfield of Yale University School of Medicine, who reported on the meeting of the committee on hearing of the National Research Council; Merle Ansberry of Veterans Administration; Warren H. Gardner of the Cleveland Hearing and Speech Center, and D. W. Morris of Ohio State University; William G. Hardy of Johns Hopkins Hospital was moderator of a discussion on speech, lip reading, acoustics and auditory training.

NAVY

NEW MEDICAL TRAINING PROGRAM

The Surgeon General of the Navy has announced the expansion of the Bureau's professional training program for reserve and regular medical officers, which is similar to the recently expanded Army medical training program. The object is to permit more Navy doctors to meet the requirements for certification by the various American specialty boards and to encourage the young doctor to intern under the auspices of the Navy. The following are the important points in this program.

Graduates of class A medical schools who have been accepted for internship by a hospital approved for such training by the Council on Medical Education and Hospitals of the American Medical Association may be commissioned as lieutenants (junior grade), MC, USNR, and permitted to continue their intern training. They will receive all the pay and allowance of the rank while so serving. After completing their internships, the medical officers must remain on active duty for a period of one year. If they meet the professional, physical and moral requirements, they will be given every encouragement to transfer to the regular Navy.

Interns who have completed the one year of obligated service and who have transferred to the regular Navy may be considered for residency training on a competitive basis with other officer personnel of the regular Medical Corps.

Resident physicians now in civilian hospitals, or those accepted for approved residency training, are eligible for commissions in the regular Navy. Those so commissioned will be assigned to duty, with full pay and allowances, in the hospital in which they are already a resident or to which they have been accepted for residency training. Every attempt will be made to permit residents holding commissions in the regular Navy to complete their training in event of an emergency.

The Navy has at present 400 approved residencies and fellowships in the various specialties recognized by the American Specialty Boards in Naval and civilian hospitals. This educational training involving the 400 residencies is divided into two programs.

Program A: One hundred of these residencies, courses and fellowships will be made available for civilian physicians accepting a commission in the Navy. An additional hundred civilian physicians will be commissioned in the Navy and permitted to pursue their own course, fellowship or residency, provided that it is approved by the Council on Medical Education and Hospitals of the American Medical Association with concurrence of the Specialty Board. On acceptance of the designated training, they will be required to agree to remain in the Navy for a certain obligated time.

If on original appointment a candidate has not been approved for more than one year of training, during his first year of residency training (program A) he may compete for 1 of the 300 residencies (program B) available to the Regular Naval medical officers, and if he obtains such training he will obligate himself to remain on active duty for an additional period depending on the amount of time spent in training.

Program B: Three hundred residencies, fellowships or courses will be reserved for continuing the training program as presently organized for regular medical officers.

The obligated service following graduate medical training (courses, fellowships and residencies) in Naval hospitals is one year for each year of training received.

Information concerning any part of the program may be obtained by writing the Chief of the Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C.

NAVAL CAREER IN RESEARCH

The Bureau of Medicine and Surgery has added the field of research to the list of specialties for which medical officers may qualify and thus be assured of spending a major part of their Naval career in research. While the qualifications required for this specialty are not inflexible, it is desirable to have a Ph.D. in one of the basic medical sciences. However, the application of any officer of the Naval Medical Department having an interest in research as a career will be considered, and if such training is indicated he will be started on a tour of duty at one of the Naval Medical Research Institutions, followed later by short tour of sea duty to provide an over-all picture of the Navy's needs. Training in civilian research laboratories will be offered also. Applications are desired from physicians and other scientists now in the Naval Reserve and also from qualified civilians interested in a career of naval medical research.

PERSONALS

Dr. Henry L. Bockus, professor of gastroenterology at the University of Pennsylvania Graduate School of Medicine, Philadelphia, spoke on "The Present Status of Management of Peptic Ulcer Disease" at the Navy Medical Center, Bethesda, Md., May 14. This was the last of the present series of guest lectures.

Lieut. Comdr. Vernon T. Palmer, after more than thirty years in the Hospital Corps of the Navy, retired May 3 and will make his home in Seattle. Formerly a chief pharmacist in the Navy, he was awarded the Bronze Star for meritorious service with the 3d Amphibious Corps during the landings on Bougainville, Guam, Palau and Okinawa.

Comdr. Fred G. Hirsch (MC) addressed the New York Academy of Medicine April 29 on "Relationship Between the Electro-Conductivity and Erythrocyte Concentration in the Blood."

AWARDS AND COMMENDATIONS

Dr. Sumner L. Koch

The Certificate of Merit has been awarded to Dr. Sumner L. Koch, associate professor of surgery, Northwestern University Medical School, Chicago, for his outstanding contribution to the war effort while a member of the Subcommittee on Infected Wounds and Burns of the National Research Council. The new compression technic used in place of tannic acid and gentian violet in the treatment of burns was a product of the research and experiments which he directed.

Dr. Winfred Overholser

The Bureau of Medicine and Surgery on April 22 presented a Certificate of Appreciation to Dr. Winfred Overholser, superintendent of St. Elizabeths Hospital, Washington, D. C., and a Certificate of Achievement to that hospital. The certificates were awarded in recognition of the valuable assistance rendered by St. Elizabeths Hospital and by Dr. Overholser, personally, to the Medical Department of the Navy during World War II in the training of Navy medical personnel and treatment of Navy patients.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

McCaffrey, W. T.	Weehawken, N. J.
McClenathan, C. K.	Washington, Pa.
McClure, C. C.	Nashville, Tenn.
McElroy, G. L.	New Franklin, Mo.
McMahon, R. J.	Rochester, N. Y.
McMurtrey, G. B.	Cody, Neb.
Malec, H. W.	Milwaukee
Mallamo, F. W.	Fairmont, W. Va.
Martsolf, J. H.	New Brighton, Pa.
Mauler, F. Jr.	Columbus, Ohio
Mayo, E. A. Jr.	Richland, Ga.
Meunier, H. J.	Oakes, N. D.
Midgley, W. V. S.	Scarsdale, N. Y.
Milam, D. F.	Sissonville, W. Va.
Miller, M. R.	San Francisco
Minges, R.R.	Cincinnati, Ohio
Mitchell, E.H. Jr.	Indianapolis, Ind.
Moats, A. W. Jr.	Fairchance, Pa.
Moffitt, C. R.	Alturas, Calif.
Moore, R.A. Jr.	Hampden-Sydney, Va.
Morgan, M.B.	New York, N. Y.
Morgenlander, S. B.	New York
Morris, J.T. Jr.	Birmingham, Ala.
Morrison, D.R.	New York, N. Y.
Morrison, F.D.	Kirkland, Wash.
Morrison, J.W.	Oklahoma City, Okla.
Morissette, R.A.	New Haven, Conn.
Mullin, E. E.	Manlius, Ill.
Murphey, E. M. III	Macon, Miss.
Murphy, C. J. Jr.	Washington, D. C.
Musgrave, H. S.	Mount Lebanon, Pa.
Myers, R. O.	Los Angeles
Nash, T. M.	Dallas, Texas
Nauss, T. J.	Wilkes-Barre, Pa.
Newcomb, C. E.	Minneapolis
Nicholas, J.A.	New York, N. Y.
Nixon, R. E. Jr.	Denver
Nolan, R. B.	New York
Norton, R. O. Jr.	Louisville, Ala.
O'Brien, J.G.	Otway, Ohio
O'Donnell, J.H.	Pittsburgh, Pa.
Olsavsky, J. C.	Bridgeport, Conn.
O'Neil, J. W.	Malden, Mass.
O'Neil, M. B.	Buffalo
Osborn, J.E.	Wolcott, N. Y.
Osborne, R.W.	Windfall, Ind.
Osborne, W.W.	Gordonston, Ga.
O'Sullivan, E.P.	Newark, N. J.
Orloff, T.	Philadelphia
Orris, L.	New York
Orvin, G. H.	Charleston, S. C.
Owrey, R. H.	Pittsburgh
Page, H. G.	South Ryegate, Vt.
Paquin, A. J. Jr.	Bisbee, Ariz.
Parker, L.F.	Perry, Iowa
Parsons, W. H.	Erie, Pa.
Percy, W.E. Jr.	Ida, La.
Persky, L.	Cleveland Heights, Ohio
Phillips, C.M.	San Antonio, Tex.
Phillips, G. W.	South Birmingham, Ala.
Pigozzi, W.N.	Greenock, Pa.
Pohlidal, S. J.	New York
Pollock, L.H.	Kansas City, Mo.
Pordy, L.	New York, N. Y.
Poskanzer, C. L.	Albany, N. Y.
Powelson, D. H.	San Francisco
Powers, R. F.	Alhambra, Calif.
Prystowsky, M.	Charleston, S. C.
Quillin, R. C.	Coeburn, Va.
Radcliffe, W.D. Jr.	Belen, N. M.
Ravven, R.M.	Wahan, Mass.
Reedy, R.N.	Baldwin Park, Calif.
Reid, R.A.	Sevelland, Tex.
Reitmann, J.H.	Red Wing, Minn.
Ricci, J.J.	Flushing, N. Y.
Ricks, M.	San Francisco, Calif.
Rifner, E.S.	Spiceland, Ind.
Riley, W.G.	Meridian, Miss.
Ritter, H. Jr.	New York, N.Y.
Ritter, T. J.	Allentown, Pa.
Rosenbaum, S.	New York, N.Y.
Rowbottom, S.W.	Geneva, Ill.
Rubin, H.S.	Swampscott, Mass.
Ryan, J.E.	Lebanon, Ky.
Ryder, C.T. Jr.	Colorado Springs, Colo.
Sahs, M.H.	Earlville, Iowa.
Sakin, G.I.	New York, N.Y.
Sanchez-Ubeda, R.M.	Condado, Santurce, P.R.
Sar, F.	New York, N.Y.
Schaefer, L.E.	Denver, Colo.
Schaeffer, R.C.	Redondo Beach, Calif.
Schejbal, G.J.	St. Louis, Mo.
Schonebaum, R.M.	Omaha, Neb.
Schwartz, M.S.	Fresno, Calif.
Scott, W.M.	Milledgeville, Ga.
Seitz, E.R.	McComb, Miss.
Sellers, V.O. Sr.	Natchitoches, La.
Sennett, L.W.	Milwaukee, Wis.
Shands, W.C.	Jackson, Miss.
Shanedling, P.D.	Chicago, Ill.
Shell, J.H. Jr.	Greenville, S.C.
Sherbon, D.	Philadelphia, Pa.
Simon, S.J.	Los Angeles, Calif.
Simons, G.M.	Cumberland, Md.
Simpson, N.H. Jr.	Little Rock, Ark.
Skemp, J.T.	La Crosse, Wis.
Smith, J.R.	New York, N.Y.
Smith, W.B.	Newton Falls, Ohio
Smith, W.H.	Corbin, Ky.
Smith, W.S.	Greenwick, Conn.
Sommer, R.R.	Grove City, Ohio
Sponsel, K.H.	Chicago, Ill.
Steinberg, M.E.	New York, N.Y.
Stichel, F.L. Jr.	Baltimore, Md.
Stillman, P.H.	New York, N.Y.
Stollerman, G.H.	Forest Hills, N.Y.
Strickland, N.H. Jr.	Kissimmes, Fla.
Stueber, P.J. Jr.	Lima, Ohio
Talbert, T.E.	Portland, Oreg.
Taylor, M.	Chelsea, Mass.
Taylor, R.F.	Charlotte, Mich.
Tazzioli, H.A.	Detroit, Mich.
Tessitore, A.	Washington, D.C.
Tracewell, G.L.	Okmulgee, Okla.
Turner, D.B.	Shreveport, La.
Unger, R.L.	Stickney, S.D.
Vargas, L.L.	Providence, R.I.
Victor, W.H.	Rockaway Beach, N.Y.
Ward, E.J.	Philadelphia, Pa.
Ward, R.D.	Nashville, Tenn.
Waterman, W.P. Jr.	New London, Conn.
Whitaker, E.C.	Cumberland, Ky.
Whitehurst, J.R.	Houston, Tex.
Williams, R.W.	Kinston, Ala.
Wiley, R.H.	Amityville, N.Y.
Williams, R.W.	New York, N.Y.
Wilson, J.C. Jr.	Pasadena, Calif.
Wilson, R.B.	Lincoln, Neb.
Wohlrabe, A.C.	Minneapolis, Minn.
Wood, E.S.	Chicago, Ill.
Wood, W.L.	Worcester, Mass.
Woodward, C.E.	Glen Falls, N.Y.
Zeiss, C.J.	Valley Stream, N.Y.
Ziegler, P.R.	Baltimore, Md.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Research Society Formed.—The Medical Research Society of Southern California was recently formed to further high standards of medical research and education and to foster public interest in the need of research. Dr. Charles M. Carpenter, professor of infectious diseases, Medical School of the University of California, Los Angeles, has been elected chairman. Advisory council members are deans of Southern California medical schools: Dr. Walter E. Macpherson, College of Medical Evangelists; Dr. Burrell O. Raulston, University of Southern California School of Medicine; Dr. Stafford L. Warren, Medical School of the University of California, Los Angeles campus, and Dr. Lewis T. Bullock of the Los Angeles County Medical Society.

CONNECTICUT

Faculty Appointments and Promotions.—Yale University School of Medicine, New Haven, announces the following appointments and promotions. Dr. Thomas R. Forbes, assistant professor of anatomy, becomes assistant dean of the School of Medicine in charge of student affairs, succeeding Donald H. Barron, Ph.D., associate professor of physiology. Those promoted to associate professorships include Drs. John R. Brobeck, physiology; Clement C. Clay, hospital administration, and Fredrick C. Redlich, department of psychiatry and mental hygiene. Assistant professors include: Drs. Helen R. Gilmore, who will be in charge of the psychiatric inpatient clinic; William W. Engstrom and Henry D. Hoberman, medicine; Arnold H. Janzen, radiology, and Dorothy M. Horstmann, preventive medicine. Dr. Leonell C. Strong, research associate in anatomy, was promoted to the rank of professor. Clinical appointments include: Drs. Aloys G. Ansprenger, assistant clinical professor of radiology; James M. Cunningham, lecturer in psychiatry and mental hygiene, promoted to the rank of associate clinical professor; Gideon K de Forest, assistant clinical professor of medicine; Russell V. Fuldner, lecturer in anatomy and assistant clinical professor of orthopedic surgery; Mildred H. January, assistant clinical professor of pediatrics and psychiatry and mental hygiene, and Bernard L. Kartin, assistant clinical professor of medicine.

GEORGIA

Personal.—Dr. Robert Rogers, Gainesville, has been elected chairman of the State Board of Health to succeed Dr. Charles L. Ridley, Macon.

State Medical Election.—At the annual meeting of the Medical Association of Georgia, April 27-30, Dr. Edgar H. Greene, Atlanta, became president and Dr. Enoch Calloway, LaGrange, became president-elect. Dr. Edgar D. Shanks, Atlanta, was reelected secretary treasurer.

Typhus Menace Reduced.—The state department of public health carried on ddt dusting and rat eradication activities in seventy-six Georgia counties in 1947, with the result that in five of the most densely populated counties, comprising one fourth of the state's population, the number of typhus cases decreased 57 per cent over 1946 and 92 per cent over 1945, when DDT dusting was begun. From a total of 1,111 cases of typhus reported in 1945, the number dropped to 436 in 1947, a decline of 61 per cent for the state as a whole. DDT dusting was extended in 1947 to include farm residences and outbuildings and more than 182,787 premises were dusted, nearly 35,000 more than in 1946. Poison bait was also used in some areas, and ratproofing buildings, refused collecting and sanitary land fills were also employed.

ILLINOIS

Fewer Cases of Communicable Disease.—The state department of public health reports that the number of cases of most communicable diseases in the first thirteen weeks of 1948 were fewer than those reported in 1947. Outstanding exceptions were measles and mumps, of which Illinois experienced "minor epidemic waves." Twenty-eight cases of diphtheria were reported in the first quarter of 1948, a decrease of 16 cases for the corresponding period in 1947. This is the lowest ever recorded in Illinois. Poliomyelitis morbidity reports show a decrease of 68 per cent from those for 1947.

Chicago

Research in Blood Diseases.—The Hematology Research Foundation recently celebrated the achievement of its goal of $25,000 to advance the study of leukemia and other blood diseases. The money raised by the foundation is given to Michael Reese Hospital to support this research.

Film to Record Cancer Growth.—Northwestern University Medical School, by means of automatically focused motion picture camera, will start this fall to record over an extended period growing cancer cells. John Nash Ott Jr., Winnetka, has been commissioned to do the photographic work in an air-conditioned, underground laboratory, under the direction of Dr. William B. Wartmen, Morrison professor and chairman of the department of pathology.

Rotary Club Devotes Session to Tuberculosis.—The Rotary Club of Chicago, at its meeting in the Sherman Hotel, June 1, considered "Tuberculosis: Its Problem and Solution." The speakers were Drs. Morris Fishbein, Editor of THE JOURNAL; Herman N. Bundesen, president, Chicago Board of Health, and James H. Hutton, chairman, committee on tuberculosis control, Chicago Medical Society, who acted as chairman.

Hektoen Institute Awards.—Hektoen Institute for Medical Research of the Cook County Hospital won the following prizes at the Illinois State Medical Society Scientific Exhibits: Gold Medal, educational value, "Amino Acids in Clinical Medicine," Drs. Karl A. Meyer, Donald D. Kozoll, William S. Hoffman, Frederick Steigmann and Hans Popper; Bronze Medal, original investigative work, "Radioactive Isotopes in Peripheral Vascular Work," Drs. Morris T. Friedell, Fenton Schaffner, William J. Pickett and Irvin F. Hummon.

Instructorship Awards.—Drs. Henry G. Poncher and Eric Oldberg were named by the senior students at the University of Illinois College of Medicine as winners of the Raymond B. Allen Instructorship Award, designed to honor excellency in individual instructorship rendered by faculty members to students. Dr. Poncher, head of the department of pediatrics, was honored for clinical instruction. The award for excellency in didactic instruction has been given to Dr. Oldberg, head of the department of neurology and neurological surgery. Recipients of instructorship awards from other classes are as follows: junior class—Dr. Poncher for clinical instruction and Dr. Isadore A. Rabens, clinical associate professor of medicine, for Pfeiffer, head of the department of pharmacology and pharmacognosy; freshmen class—tie between William J. Furuta, Ph.D., and Parke H. Simer, Ph.D., of the department of anatomy.

INDIANA

Health Association.—Dr. Walter L. Portteus, Franklin, became president of the Indiana Public Health Association at the annual meeting in Indianapolis. The principal speaker at the banquet was Dr. Cleon A. Nafe, Indianapolis, president of the Indiana State Medical Association.

General Practitioner Award.—The Indiana State Medical Association will present a medal to some outstanding general practitioner at the annual meeting in October. Each county medical society will be invited to submit a nomination to the council. The "Hoosier Doctor of the Year" will be the Indiana State Medical Association nomination for the American Medical Association's General Practitioner Award.

LOUISIANA

Personal.—Ernest Carroll Faust, Ph.D., professor of parasitology and head of the department of tropical diseases at Tulane University of Louisiana School of Medicine, New Orleans, has been elected honorary member of the Tropical Medicine Society of Belgium.

State Medical Election.—At the annual meeting of the Louisiana State Medical Society in Monroe, April 12-14, Dr. Edwin H. Lawson, New Orleans, was chosen president-elect, and Dr. Marion D. Hargrove, Shreveport, was installed as president. Dr. Valentine H. Fuchs, New Orleans, was named delegate to the American Medical Association 1949 and 1950, with Dr. George H. Hauser, New Orleans, named alternate. The next annual meeting will be held in New Orleans.

MASSACHUSETTS

Seminar on Health Education.—The Harvard Summer School and the Massachusetts Department of Public Health, Boston, will jointly sponsor a four week graduate seminar in health education. Opening on June 28, it will offer training in health education for school administrators, for teachers of nutrition, social studies, health and physical education and for members of agencies in the school health field.

Massachusetts General Appoints Research Committee.—A scientific advisory committee has been appointed at Massachusetts General Hospital, Boston, to review research projects, advise on policies and inform the hospital trustees on the general value of present and future research. Dr. Walter Bauer, Boston, is chairman of the committee. Members of the committee from Harvard Medical School are Drs. C. Sidney Burwell, dean; John Homans, Eugene M. Landis and J. Howard Means; others are Karl T. Compton, president, Massachusetts Institute of Technology, Cambridge; Carl F. Cori, St. Louis, co-winner of the Nobel Prize in Medicine, 1947; Nathaniel W. Faxon, director of the hospital; Edward D. Churchill, and Herbert S. Gasser, director, Rockefeller Institute. The hospital feels that the presence of distinguished scientists from other parts of the country gives the committee a broader perspective on research problems than would otherwise be possible.

MICHIGAN

Honor Veteran Doctors.—Citizens of Marine City on April 4 honored two of their physicians, Drs. Thomas E. DeGurse and Aaron B. Armsbury, at a testimonial dinner. Dr. DeGurse was recently chosen "Michigan's Foremost Family Physician" by the state medical association. Dr. Armsbury completed fifty years of practice in Marine City March 17. Both men have also served the community in civic positions.

Women Physicians Establish Scholarship.—The Dr. Esther H. Dale Scholarship Fund has been established by Nu Sigma Phi, a women's medical sorority at the Wayne University College of Medicine, Detroit, in honor of Dr. Dale's achievements in medicine and in sorority activities. The scholarship will aid promising women medical students who need help with their education. Dr. Dale, a 1941 alumna of the college of medicine, is an instructor in pathology there. She is also National Noble Grand of Nu Sigma Phi and past president of the Blackwell (Michigan) branch of the American Women's Medical Association.

MINNESOTA

Fake Eye Specialist Imprisoned--Elliot Wilkinson, 54, Dallas, Texas, was sentenced to not more than five years at hard labor in the Minnesota Prison at Stillwater, by the judge of the Finkelnburg District Court, Winona. Wilkinson pleaded guilty to an information charging him with grand larceny in the second degree. He was arrested on May 9 by Winona police after he had swindled a Winona County farm woman out of $60 by falsely representing himself as an eye specialist from Chicago, and further stating that the patient had cataracts. Wilkinson's record (THE JOURNAL Dec. 10, 1927, page 2047; July 2, 1932, page 41; Jan. 2, 1937, page 55) includes a sentence of five years in 1932 in the State Prison at Stillwater for grand larceny in the first degree, growing out of a $1,500 swindle perpetrated in 1924; seven years in the Federal Prison at Atlanta, Ga., for using the mails to defraud, and 5 years in the Virginia State Prison at Richmond. To farm people Wilkinson represented himself as an eye specialist; after diagnosing the case as cataracts, he would extract a large sum of money from the patient. He would insert a liquid preparation into the eye and then show the patient a small piece of tissue paper which he represented as being the cataract.

NEW JERSEY

Society News.—A Physicians' Art Association of New Jersey, open to all members of the Medical Society of New Jersey, has been organized, with Dr. Robert A. Giuliana, Newark, president, and Dr. Marvin C. Becker, Newark, secretary.

Community Honors Physician.—The entire rural Hunterdon County community met in the school gymnasium at Bloomsbury, April 17, to honor Dr. Edgar W. Lane on his completion of thirty years of service. Dr. Lane is a graduate of the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1915.

NEW YORK

Personal.—Dr. Stanley W. Sayer, Gouverneur, district state health officer in charge of the Gouverneur District, retired April 7 after more than thirty years' service on the staff of the New York State Department of Health.

Institute on Community Nutrition.—A second Community Nutrition Institute, sponsored by Syracuse University and the New York State Department of Health, will be presented July 5-17 at Washington Arms, Syracuse. July 5-10 the discussion of technics in community nutrition will include the place of nutrition in the public health program, food planning, how to get the public to use nutrition information, psychologic factors affecting nutrition and relationships of professional personnel with the client. The second week will include a discussion of nutrition in maternal and child health, the role of nutrition in postponable diseases, its relation to susceptability to disease, and nutrition in work performances.

New York City

Columbia Appointments.—The following appointments to the staff of the Columbia University College of Physicians and Surgeons were announced recently and will be effective July 1: Dr. Samuel M. Peck, associate clinical professor of dermatology; Drs. Louis E. Siltzbach, Solomon Silver and Louis J. Soffer, assistant clinical professors of medicine, and Dr. Arthur S. W. Touroff, clinical professor of surgery.

Positions Available in Neuropathology.—Kings County Hospital, Brooklyn, has available a full time and a half time position in neuropathology The new neuropathologic laboratory is a part of the new psychiatric facility. This is a teaching hospital, and the work would comprise service to the psychiatric, the neurologic and the neurosurgical departments of the hospital. Applicants should address inquiries to Dr. Sam Parker, Director of Psychiatry, Kings County Hospital, 606 Winthrop Street, Brooklyn 3, stating their background and qualifications.

Winners of Scholarships in Ophthalmology.—New York University College of Medicine has announced that Drs. Goodwin M. Breinin and Walter J. Maher, New York, Drs. Edwin H. Kent, Riverside, Conn., and Charles H. Toomey, Lakewood, Ohio, won the third annual New York City Lions' Club Scholarships for graduate training in ophthalmology. They will study special phases of eye conservation at Bellevue Hospital under the direction of Dr. Daniel B. Kirby, chairman, department of ophthalmology, New York University College of Medicine. The awards were made at a Lions club luncheon on June

Incoming Patients to Be X-rayed.—Morrisania City Hospital in the Bronx inaugurated in May the procedure of routine roentgen examinations of all incoming patients to discover whether they have tuberculosis. Detection of tuberculosis before admission will permit the hospital to safeguard its staff and patients and will make it possible to treat the patients immediately. The procedure is a joint project of the Bronx Committee of the New York Tuberculosis and Health Association and Morrisania Hospital. The association is providing the x-ray machine and technicians to operate it, and the hospital will be responsible for clinical study and follow-up on patients discovered to have tuberculosis.

PENNSYLVANIA

Cancer Detection Program.—A cancer detection program has been established in Fayette County. Sixty doctors of the county will act as examiners of well patients to insure early diagnosis. Patients may make appointments at information centers and be examined by a doctor chosen from a list there. The examination fee is $5, but in the case of indigents the American Cancer Society assumes this obligation. The program has received the full endorsement of the Fayette County Medical Society.

Philadelphia

Foundation Aids Research in Dermatology. An outright grant of $100,000 has been made to the University of Pennsylvania by the Rockefeller Foundation for the continuing development of the research program of the department of dermatology in the School of Medicine. The grant will be used to investigate fundamental problems related to disturbances of the skin. According to Dr. Donald M. Pillsbury, professor of dermatology and syphilology and chairman of the department in the Graduate School of Medicine at the University, the grant will make it possible to take full advantage of the facilities for research in the Hospital of the University of Pennsylvania, the Skin and Cancer Hospital, Graduate Hospital of the University of Pennsylvania and Children's Hospital. Facilities for investigative work in the department of dermatology at the university are most complete.

WEST VIRGINIA

Special Society News.—During the recent annual meeting of the state medical association, the West Virginia Society of Anesthesiologists was organized with Dr. Delmas E. Greeneltch, Wheeling, president, and Dr. Arkie B. Bowyer, Charleston, secretary-treasurer. Other special societies meeting in conjunction with the state association elected officers as follows: West Virginia Heart Association, Dr. William A. Thornhill Jr., Charleston, president, and Dr. Fred S. Richmond, Beckley, secretary-treasurer. West Virginia Obstetrical and Gynecological Society, Dr. Wilbur E. Hoffman, Charleston, president, and Dr. Harry G. Steele, Bluefield, secretary-treasurer. West Virginia Association of Pathologists, Dr. William T. McClure, Wheeling, president, Dr. Walter G. J. Putschar, Charleston, president-elect and Dr. Milford L. Hobbs, Morgantown, secretary-treasurer. Dr. L. Rush Lambert, Fairmont, was elected president of the West Virginia Chapter of the Medical College of Virginia Alumni.

GENERAL

Booklet on Cerebral Palsy.—The National Society for crippled Children and Adults, Inc., is distributing a fifty-seven page booklet on "The Problem of Cerebral Palsy Today". Copies may be obtained from the society at 11 South La Salle Street, Chicago 3, at 25 cents each.

Society Election.—At the Atlantic City meeting of the Federation of American Societies for Experimental Biology, March 14-19, the American Institute for Nutrition elected Elmer M. Nelson, Ph. D. Washington, D. C., president and Joseph H. Roe, Ph. D., Washington. D. C., secretary

Appointed to Federal Security Administration.—J. Donald Kingsley has been appointed assistant federal security administrator to succeed Maurice Collins, Washington, D. C., who retired last September after thirty-five years of federal service. Mr. Kingsley served most recently as economic adviser to the International Labor Office in Geneva, Switzerland, and as chief of the I. L. O. mission to Greece.

Cancer Fellowships Available.—Clinical fellowships in the diagnosis and treatment of cancer have been established by the American Cancer Society, Inc., for young physicians of promise and may be secured through hospitals designated by the society that offer postgraduate training in malignant diseases, surgery, obstetrics and gynecology, orthopedic surgery, otolaryngology, urology, radiology, pathology and internal medicine. The one year fellowships, renewable to a total of not more than three years, carry a stipend of $2,400 to $3,600 per year.

Placement of Electron Microscopists.—The Electron Microscope Society of America has set up a placement service for the mutual benefit of its members and potential employers. The society has on its membership roll the names of every active electron microscopist in this country. Employers seeking scientists or technicians for work in this field may use the placement service. Inquiries should be directed to Dr. C. J. Burton, Secretary, Electron Microscope Society of America, American Cyanamid Company, Stamford, Conn.

Red Cross Blood Bank Project.—Dr. Ivan W. Brown, Duke University School of Medicine, Durham, N. C., has been appointed temporary assistant national medical and technical director of the national blood bank program of the American Red Cross. From headquarters in Washington, D. C., Dr. Brown will fly to any section of the nation to advise and assist in work on local blood bank projects. National administrator for the work is Rear Admiral Ross T. McIntyre. Dr. Brown is a graduate of Duke University School of Medicine 1939.

Medical Mission to Germany.—The Unitarian Service Committee has organized a medical mission to Germany. Fourteen lecturers will discuss anatomy, physiology, biological chemistry, pharmacology, internal medicine, surgery, gynecology and obstetrics, ophthalmology, psychiatry, pediatrics and otorhinolaryngology. The mission will be made up of Drs. Otto Krayer, Boston, chairman; Dallas B. Phemister, Chicago. vice chairman; and David G. Cogan, Boston; Lyman G. Craig, Ph. D., New York; Herman DeWilde, Boston; John T. Edsall, Boston; Francis D. W. Lukens, Philadelphia; Benjamin H. Robbins, Nashville. Tenn.; ; Carl F. Schmidt, Philadelphia; Erwin W. Straus, Lexington, Ky.; Howard C. Taylor Jr., New York; Joseph F. Volker, Boston; William M. Wallace, Boston, and Friedrich Wassermann, Chicago.

Survey of Multiple Sclerosis.—A sixteen page manual of information on the diagnosis and treatment of multiple sclerosis, prepared by the National Multiple Sclerosis Society, was distributed to about 76,000 physicians in the United States during May. The manual, published in full in the Nov. 1, 1947 issue of THE JOURNAL, gives the latest information on rehabilitation and symptomatic treatment. A letter was enclosed asking physicians to inform the society of the number of multiple sclerosis patients in their care. These numerical data will be valuable as an initial fact-finding effort preceding a national survey on the prevalence of the disease in the United States. National Multiple Sclerosis Society will soon undertake this survey with the advice and cooperation of the U. S. Public Health Service.

ALASKA

Crippled Children to Be Treated in Chicago.—Twenty-four children from the Alaskan Crippled Children's Service in need of specialized medical care and hospitalization will be treated this year at the Home for Destitute Crippled Children, a unit of the University of Chicago Clinics. The project, undertaken by the home to alleviate the suffering of the most difficult and complicated cases among Alaska's orthopedic patients, will make possible medical care and hospitalization for 2 children each month. The Home for Destitute Crippled Children was founded in 1891 and for many years has been affiliated with the University of Chicago.

FOREIGN

International Congress of Otolaryngology.—The British Association of Otolaryngologists is organizing the Fourth International Congress of Otolaryngology to be held in London, July 17-23, 1949. There will be further meetings, for those interested, at Oxford, Cambridge and Edinburgh on July 25-26. The secretaries of the national otolaryngological societies have been asked to send a list of their members for individual notification. Should any association not receive this letter, its secretary should communicate with the General Secretary, Mr. F. C. W. Capps, F.R.C.S., 45, Lincoln's Inn Fields, London, W. C. 2.

Medical Weeks.—The International Association of Medical Press has organized European conferences and weeks. The Italian Medical Week in Spain will be a series of lectures held by Italian professors and the universities of Zaragoza, Madrid, Barcelona, Valencia, Valladolid and Santiago de Compostella; it will take place in June 1948. The official invitations have been sent from the Spanish universities to the most eminent Italian professors. Reciprocally, a Spanish Medical Week will soon be organized at the University of Bologna in November 1948. The Italian Medical Week at Paris was to have taken place in December 1947 but was postponed because of the political situation in France. An effort will be made to arrange the meeting for June or September, 1948. Professor G. Caronia, rector of Rome University, has been appointed chief of the Italian delegation. Professor Caronia has already been invited by the French government in Paris to contact the *doyens* of the Medical Faculty of the University of Paris about the organization of the meeting. French Medical Week at Rome will be organized with the cooperation of the rector of Rome University, Professor Caronia, and the *doyens* of the faculty of medicine and pharmacy of the University of Paris.

CORRECTIONS

Internship and Residency Number —The following corrections pertain to the Internship and Residency number of THE JOURNAL published May 1, 1948.

Dr. B. D. Jay is chief of the Radiology service, Charles S. Wilson Memorial Hospital, Johnson City, N. Y., instead of Dr. E. M. Jones (page 79).

Data regarding St. Mary's Hospital, Brooklyn (page 57), are revised as follows: Chief of service, Dr. Henry J. Goubeaud Jr.; inpatients treated, 2,617; number of outpatient visits, 5,343; deaths on service, 7; number of autopsies, 1; assistant residents, 2; residents, 1; service begins, July 1; length of service, 2 years; minimum stipend per month, $50.

Data regarding Edward J. Meyer Memorial Hospital, Buffalo (page 86), are revised as follows: Dr. John D. Stewart, chief; inpatients treated, 147; deaths on service, 23; number of autopsies, 13; residencies offered, 2 starting July 1; length of service, 3 years; minimum stipend per month, $100.

Marriages

JAMES EDWARD SEGERSON to Miss Margaret Isabel Crowley, both of Rochester, N.Y., May 1.

AUGUSTUS LYNN BAKER Jr., Dover, N.J., to Miss Eleanor Jean Black at Mountain Lake, April 24.

PETER RANDALL, Philadelphia, to Miss Rose Gordon Johnson of Baltimore, May 1.

SHEROD M. BILLINGTON, Seattle, to Miss Carol Dore, of Redmond, Wash., April 17.

CHARLES LEONARD SMITH, Spartanburg, S.C., to Miss Bobbie Jean Love of Asheville, N.C., April 3.

DONALD ROY PRATT to Dr. ARLENE MARJORIE MANN, both of San Francisco, April 7.

JACK SPENCER, Portland, Maine, to Mrs. Charlotte Nolan Crawford of Bryn Mawr Pa., in March.

CHARLES GLENN SAWYER, New Bern, N.C., to Miss Elizabeth Gaston Ivey of Albemarle, April 24.

OWEN FLOYD HUGHES to Miss Betty Joyce Blalock, both of Birmingham, Ala., in April.

MICHAEL V. GILBERTI, Aliquippa, Pa., to Miss Grace Anne Chase of Coatesville, April 24.

Deaths

Edward Joseph O'Brien Jr., ⊕ Newton, Mass.; born in Chelsea, Mass., in 1888; Tufts College Medical School, Boston, 1912; specialist certified by the American Board of Urology, Inc.; member of the New England Obstetrical and Gynecological Society and of the American Urological Association; fellow of the American College of Surgeons; at one time college football referee; affiliated with St. Elizabeth's Hospital, Brighton, Somerville (Mass.) Hospital, State Infirmary, Tewksbury, Metropolitan State Hospital, Waltham, Charles Choate Memorial Hospital, Woburn, and the Cambridge City Hospital, where he died February 15, aged 60, of coronary thrombosis.

Thomas Christopher Patterson, Lisbon, N. D.; born in Grafton, Ontario, Canada, Jan. 9, 1864; Trinity Medical College, Toronto, Canada, 1889; member of the American Medical Association; formerly alderman, member of the park commission, president of the county board of health and member of the school board; regimental surgeon for the first North Dakota infantry regiment serving with it on the Mexican border in 1916 and 1917; served during World War I; commandant of the North Dakota Soldiers' Home; died in the Veterans Administration Center, Fargo, February 22, aged 84, of carcinoma of the stomach.

Frederick Walter Rice, New York; born in Winn, Maine, March 25, 1880; Columbia University College of Physicians and Surgeons, New York, 1906; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; fellow of the American College of Surgeons; formerly on the faculty of the New York University College of Medicine; served during World War I; affiliated with Holy Angels Hospital in Teaneck, N.J., Margaret Hague Memorial Hospital in Jersey City, Norwalk (Conn.) General Hospital, Bellevue and Doctors hospitals; died March 30, aged 68.

Arthur Ferdinand Cooper ⊕ Memphis, Tenn.; born Aug. 26, 1881; Vanderbilt University School of Medicine, Nashville, 1904; associate professor of medicine at the University of Tennessee College of Medicine; past president of the Memphis-Shelby Counties Medical Society; formerly secretary of the Mid-South Post Graduate Medical Assembly; served as editor of the *Memphis Medical Journal;* affiliated with John Gaston Hospital, Methodist Hospital, Veterans Administration Hospital and Baptist Memorial Hospital, where he died January 7, aged 66, of pneumonia.

Perry Watson Miles ⊕ Danville, Va.; born in Mathews, Va., Feb. 9, 1883; University College of Medicine, Richmond, 1908; formerly vice president of the Medical Society of Virginia; served as president of the Danville-Pittsylvania Academy of Medicine; member and chairman of the school board, for many years resident physician for the Southern Railway; chief of staff of the Danville Memorial Hospital; member of the draft board during World War II; died in Johns Hopkins Hospital, Baltimore, February 21, aged 65, of cerebral hemorrhage.

Rosier Davis Dedwylder, Cleveland, Miss.; born in 1882; University of Alabama School of Medicine, University, 1907; member of the American Medical Association; gave up his private practice in 1912 to work with the state board of health and the Rockefeller Foundation in a study of hookworm in the South; subsequently carried out investigation of malaria and malaria control; since 1920 director of the Bolivar County Health Department; died in the City Hospital February 20, aged 65, of coronary thrombosis.

Thomas McSwiney Barrett ⊕ Emsworth, Pa.; born in Emsworth, Pa., Dec. 31, 1881; Western Pennsylvania Medical College, Pittsburgh, 1906; specialist certified by the American Board of Psychiatry and Neurology, Inc.; member of the American Psychiatric Association and the Association of Military Surgeons of the United States; served during World War I; at various times associated with the Dixmont (Pa.) State Hospital, Suburban General Hospital, Bellevue, Veterans Administration Hospital in Knoxville, Iowa, and St. Francis Hospital in Pittsburgh, where he died March 27, aged 66, of carcinoma of the colon.

Thomas Edwin Neill ⊕ Washington, D. C.; Georgetown University School of Medicine, Washington, 1908; formerly on the faculties of the Georgetown University School of Medicine and the George Washington University School of Medicine; served during World War I; past president of the Medical Society of the District of Columbia and the Clinico-Pathological Society of Washington; formerly on the staffs of Emergency Hospital and Garfield Memorial Hospital, where he died February 22, aged 69, of coronary occlusion.

David Benjamin Martinez ⊕ Slidell, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1922; fellow of the American College of Surgeons; formerly associate professor of obstetrics at the University of Pittsburgh School of Medicine and on the staffs of the Magee and Presbyterian Hospitals in Pittsburgh; served on the staff of the New Biloxi (Miss.) Hospital; died in the Touro Infirmary, New Orleans, February 26, aged 49.

Michael Depta ⊕ Pittsburgh; born in Mount Pleasant, Pa., on May 8, 1889; University of Pittsburgh School of Medicine, 1917; assistant professor of laryngology and rhinology at his alma mater; specialist certified by the American Board of Otolaryngology; fellow of the American College of Surgeons; served during World War I; affiliated with the Pittsburgh Hospital, Presbyterian Hospital and St. Francis Hospital, where he died February 2, aged 58, of coronary thrombosis.

Percival C. Barnes, University City, Mo.; St. Louis College of Physicians and Surgeons, 1906; member of the American Medical Association; died February 27, aged 73, of leukemia.

Charles Worcester Beaman, Cincinnati; Eclectic Medical Institute, Cincinnati, 1903; formerly on the faculty of his alma mater; served during World War I; died February 25, aged 67, of aortic aneurysm.

Joseph Napoleon Boyer Jr., Springfield, Mass.; Harvard Medical School, Boston, 1899; served during World War I; died in the Veterans Administration Hospital, Northampton, February 26, aged 72, of coronary thrombosis.

Robert Lee Bushart ⊕ Fulton, Ky.; University of Tennessee Medical Department, Nashville, 1901; past president of the Hickman and Fulton Counties Medical Society; affiliated with the Fulton Hospital; died February 22, aged 72, of coronary thrombosis.

Frank Hough Carber, New York; Columbia University College of Physicians and Surgeons, New York, 1912; formerly a fellow in medicine at the Mayo Foundation in Rochester, Minn.; served during World War I; at one time chief examiner for the Life Extension Institute; medical director of the Mutual Life Insurance Company; died February 28, aged 62, of heart disease.

Travis Carroll, Cincinnati; University of Louisville (Ky.) Medical Department, 1883; Medical College of Ohio, Cincinnati, 1891; died February 24, aged 86, of chronic myocarditis.

Sherman Cook, Attica, Ohio; Cleveland Medical College, Homeopathic, 1897; died in the Bucyrus City Hospital in Bucyrus February 19, aged 76, of pernicious anemia.

William J. Cummings, Alvarado, Texas; University of Texas School of Medicine, Galveston, 1909; past president of the Johnson County Medical Society; city health officer of Alvarado and local physician for the Missouri, Kansas and Texas Railroad; served as member of the school board and as alderman; died in a hospital at Fort Worth, February 11, aged 63, of pneumonia.

Martin Dalton, Fenton, Mo.; Marion-Sims College of Medicine, St. Louis, 1896; member of the American Medical Association; a director and one of the founders of the Farmers and Merchants' Bank; died February 28, aged 79, of pneumonia.

Spencer Cornelius Dickerson ⊕ Chicago; Rush Medical College, Chicago, 1901; formerly field health officer; served in France during World War I; on the staff of the Provident Hospital; died in the Albert Merritt Billings Hospital February 25, aged 77, of heart disease.

Boyd Dodson ⊕ Wilkes-Barre, Pa.; Jefferson Medical College of Philadelphia, 1889; past president of the Luzerne County Medical Society; for many years member of the board of education; member of the staff of the Wilkes-Barre General Hospital; died March 19, aged 80, of acute dilatation of the heart.

Benjamin Adoneram Doggett ⊕ Norfolk, Va.; Medical College of Virginia, Richmond, 1915; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; president elect of the Norfolk County Medical Society; affiliated with the Norfolk General Hospital, where he died February 27, aged 55, of subarachnoid hemorrhage.

Franz Gill Edwards ⊕ Waldport, Ore.; Harvard Medical School, Boston, 1923; served during World War I; director of the Waldport Community Hospital; died February 2, aged 52, of pulmonary and cerebral hemorrhage.

Emily Hartman Emery, Vallejo, Calif.; Hahnemann Hospital College of San Francisco, 1897; at one time health officer of Emeryville; affiliated with the Juvenile Detention Home in Oakland; died February 21, aged 81, of carcinoma.

Thomas Luther Goodnight ⊕ Caldwell, Texas; University of Louisville (Ky.) Medical Department, 1913; past president of the Burleson County Medical Society; county health officer; served during World War I; member of the Selective Service Board during World War II; local physician and surgeon for the Santa Fe and Southern Pacific Railroads; died February 9, aged 59, of multiple myeloma.

Lawrence E. Heiges, Lompoc, Calif.; Northwestern University Medical School, Chicago, 1904; served as mayor of the city of Lompoc; formerly member of the Santa Barbara County Planning Commission; on the courtesy staff of the Santa Barbara Cottage Hospital in Santa Barbara; on the honorary retired staff of the Lompoc Hospital, where he died February 15, aged 73, of acute hepatitis.

Carrie S. Staines Kellogg ⊕ Fenwick, Mich.; American Medical Missionary College, Battle Creek, Mich.; and Chicago, 1899; for many years member of the staff of the Battle Creek Sanitarium in Battle Creek, member of the Michigan State Medical Society; died February 16, aged 80, of cerebral hemorrhage.

John William Ledbury ⊕ Uxbridge, Mass.; College of Physicians and Surgeons, Baltimore, 1905; an Affiliate Fellow of the American Medical Association; died February 20, aged 72.

Samuel Johnston McNeill ⊕ Chicago; Rush Medical College, Chicago, 1903; past president of the Northshore Branch of the Chicago Medical Society; at one time on the faculty of his alma mater; formerly associated with Augustana Hospital; died February 16, aged 73, of cerebral hemorrhage.

Joseph Henry Mitchell, Dillwyn, Va.; Baltimore Medical College, 1895; died in the Johnston-Willis Hospital, Richmond, February 11, aged 84.

John Archibald Nelson, San Francisco; University of California Medical School, San Francisco, 1892; died February 21, aged 82, of bronchopneumonia.

Manning Lionel Nelson, North, S. C.; Medical College of the State of South Carolina, Charleston, 1909; member of the American Medical Association; affiliated with the South Carolina Baptist Hospital in Columbia, where he died February 21, aged 64, of coronary thrombosis.

John Thomas Padgham, Grinnell, Iowa; State University of Iowa College of Medicine, Iowa City, 1909; member of the American Medical Association; for many years treasurer of the Powshiek County Medical Society; served on the school board; affiliated with St. Francis and Community Hospitals; died February 18, aged 71, of congestive heart failure.

Mary Elizabeth Beasley Poket, Hamilton City, Calif.; College of Physicians and Surgeons of San Francisco, 1903; died in the Enloe Hospital, Chicago, February 17, aged 77.

George Washington Potts, Los Angeles; Jefferson Medical College of Philadelphia, 1884; died February 21, aged 85, of cerebral hemorrhage.

Albert Lee Roberts, Tuscaloosa, Ala.; University of Tennessee College of Medicine, Memphis, 1918; specialist certified by the American Board of Psychiatry and Neurology, Inc.; served during World Wars I and II; affiliated with the Veterans Administration hospitals in Gulfport, Miss., and Tuscaloosa; died February 20, aged 59, of coronary thrombosis.

Abraham Harry Roller ⊕ Bristol, Vt.; University of Vermont College of Medicine, Burlington, 1935; served as secretary of the Addison County Medical Society; affiliated with Mary Fletcher Hospital, the Bishop De Goesbriand Hospital in Burlington and Porter Hospital, Middlebury; died February 12, aged 38, of coronary disease.

Homer Rogers, Bakersfield, Calif.; University of Southern California College of Medicine, Los Angeles, 1897; served during World War I; affiliated with the Kern General Hospital, where he died February 16, aged 72, of hypertension and heart disease.

Lonzo O. Rose, Parkersburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1901; member American Medical Association and the Radiological Society of North America, Inc.; chemist and bacteriologist for the city of Parkersburg for many years; served as president of the Academy of Medicine of Parkersburg; died in Cincinnati February 23, aged 70, of hypostatic pneumonia.

David Rosner, New York; Long Island College Hospital, Brooklyn, 1905; died January 28, aged 66.

Charles N. Schaefer ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1904; member of the Radiological Society of North America, Inc.; died February 2, aged 69, of coronary occlusion.

Frederick William Schilling, Louisville, Ohio; Ohio Medical University, Columbus, 1895; died February 20, aged 76.

Walter Sherwood, Brookline, Mass.; Harvard Medical School, Boston, 1896; died February 9, aged 74, of cerebral thrombosis.

James R. Stirrup, Kiowa, Okla.; Gate City Medical College, Dallas, Texas, 1907; died February 27, aged 75, of cerebral hemorrhage.

James Cornelius Sullivan ⊕ Buffalo, University of Buffalo School of Medicine, 1910, fellow of the American College of Surgeons, on the faculty of his alma mater; served during World War I, on the staffs of the Buffalo General, Children's and Deaconess hospitals; died February 2, aged 59, of cerebral hemorrhage.

Elmer Seth Tenney ⊕ Major, U. S. Army, retired, Seattle; Dartmouth Medical School, Hanover, N. H., 1897; entered the medical corps of the regular army in 1919 and retired Sept. 30, 1932; veteran of the Spanish-American War and World War I; died in Madigan General Hospital, Tacoma, January 24, aged 77.

Philip Percy Turner, Clayton, N.J., Jefferson Medical College of Philadelphia, 1897; also a druggist; died February 20, aged 78.

Charles Manley Walters ⊕ Burlington, N.C.; University of Maryland School of Medicine, Baltimore, 1908, died in St. Leo's Hospital, Greensboro, February 18, aged 71, of a skull fracture received in an automobile accident

Cassius M. Clay Walters ⊕ Los Angeles; Rush Medical College, Chicago, 1892; served during World War I; died February 19, aged 78, of hypostatic congestion of the lungs.

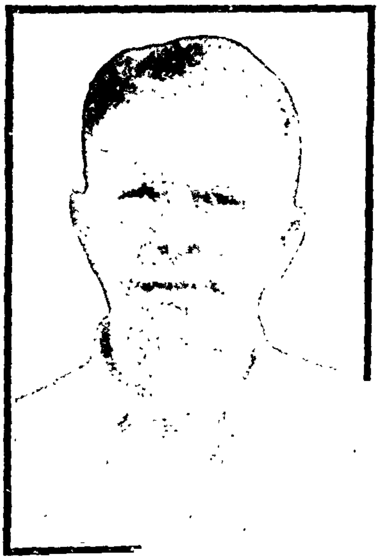
James Pendleton Webb, Durant, Okla.; Birmingham Medical College, 1915; member of the American Medical Association; died February 3, aged 58.

Agnes Ross Wilder ⊕ Atlantic, Iowa; the Hahnemann Medical College and Hospital, Chicago, 1897; affiliated with the Atlantic Memorial Hospital; died February 17, aged 74, of heart disease.

August William Zillman, Keytesville, Mo.; Rush Medical College and Hospital, Chicago, 1897; American Medical Association; died February 12, aged 88.

KILLED IN ACTION

LIEUT. (JG) CLAUDE E. ARNETT JR.
(MC) U.S. NAVY, 1918-1945



COMDR. JAMES DANIEL BOONE
(MC) U.S. NAVY, 1903-1945

CAPT. MAYO W. ALBERT
M.C., A.U.S., 1914-1944

Claude Elias Arnett Jr., Acting Assistant Surgeon, Lieutenant (jg) U.S. Navy, Emporia, Kan.; University of Kansas School of Medicine, Kansas City, 1943; began active duty as lieutenant (jg) in the U.S. Navy in August 1943, serving an internship at the Naval Hospital in San Diego; killed in Iwo Jima Feb. 19, 1945, aged 27.

James Daniel Boone ⊕ Commander, U.S. Navy, Highland, Kan.; Northwestern University Medical School, Chicago, 1930; entered the U.S. Navy on July 1, 1929; interned at the U.S. Naval Hospital in San Diego; on surgical duty at the Canacao Naval Hospital at the time war started; when Manila capitulated he was taken prisoner and interned in Bilibid Prison there; cared for the interned army and navy personnel during the four years he was confined; sent to Japan on the ill-fated prison ship which left Manila on Dec. 13, 1944; awarded a citation posthumously; awarded the Legion of Merit Medal for his courageous work at Canacao and Sangley Point area during the bombings there; died Jan. 23, 1945, aged 42.

Mayo William Albert, Houston, Texas; University of Texas Medical Branch, Galveston, 1940; interned at St. Elizabeth Hospital in Dayton, Ohio; began active duty as a first lieutenant in the medical corps, Army of the United States, in August 1941; promoted to captain in January 1944 left for the European theater of war in the medical unit of a combat battalion attached to the 174 Engineering Regiment; killed in action on the Normandy Beachhead June 6, 1944, aged 30.

Louis Percy Kasman, Brooklyn; New York Homeopathic Medical College and Flower Hospital, New York, 1928; member of the American Medical Association; interned at the Crown Heights Hospital in Brooklyn; began active duty as a captain in the medical corps, Army of the United States, Aug. 16, 1942; promoted to major; killed in action in Germany March 24, 1945, aged 42.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 15, 1948.

Second Plebiscite on National Health Service

Because of the concessions made by the Minister of Health the British Medical Association has held a second plebiscite of the whole profession on the government plan for a national health service. The result shows that 14,620 doctors approved and 25,842 disapproved. Though there is a large majority for disapproval, it has considerably diminished since the first plebiscite, which showed 40,814 disapproving and only 4,084 approving. Of general practitioners, 9,588 disapproved and 8,639 approved in this second plebiscite, a considerable advance in approval on the first plebiscite. Thus the 13,000 majority of general practitioners, which the British Medical Association laid down as necessary if the profession was to be advised to remain outside the act, was not attained.

The council of the medical association has issued a statement that the members of the profession should recognize that on some fundamental issues they have gained a substancial victory and must now prepare themselves by continued solidarity to strive for improvements by every means at their command. It appeals to those who have grave misgivings to accept the fact that an insufficient number of general practitioners share their view. The minister has appealed to the physicians to cooperate, and time has come for them so to do to the best of their ability, though with unrelenting vigilance. The council has accepted the minister's invitation to enter into discussions on the amending bill and other matters. His attention is being drawn to the large section of the profession still opposed to the national health service, and whose good will is necessary if it is to succeed. The council will report to the representative body that despite insufficiency of the safeguards to the profession's freedoms it should advise physicians to cooperate on the understanding that the minister will continue to negotiate on outstanding matters. The public should be informed that, for reasons outside the control of the medical profession, the new service cannot provide for some time all the improvements promised by the government. And so what at one time seemed a titanic struggle fizzes out in compromise, a typically English ending foretold in previous letters. There are some enlightened persons who regret that the issue of medical socialism was never fought as a matter of principle and that the English people will discover its evils only in the costly school of experience.

Improved Health of the Nation

The remarkable improvement in the health of the nation shown by vital statistics during and after the war continues. At a press conference held in London, the chief medical officer of the Ministry of Health, Sir Wilson Jameson, stated that last winter was the best England ever had as regards national health and that prospects for the coming summer were good. The general death rate for the three months ending March 31 (the worst period of the year) was easily the lowest ever known in England and Wales. The provisional figure was 12.3 deaths per thousand population, compared with a death rate of over 17 in the same period last year, which was one of the worst quarters ever known. The nearest approach in recent times to the remarkable figure of 12.3 was 13.2 in the first quarter of 1943. The number of deaths from influenza in the first quarter of 1948 was 644, against 2,796 in 1947 and 4,242 in 1946. This was the lowest figure recorded for that period.

Dr. W. H. Bradley, senior medical officer of the Ministry of Health, said that as a result of poliomyelitis last year the country was left with 3,000 cripples, but 2 of every 3 would overcome their handicap and live normal, useful lives. The epidemic was three times larger than any that had occurred previously in England and Wales. There were 7,800 cases and 700 deaths (9 per cent of the confirmed cases). Only one third of the patients were under 5 years of age. Eighteen per cent of those who died were between the ages of 35 and 45. The younger patients had a much better chance of survival than those in the upper age groups.

Sir William Jameson referred to the success of the immunization campaign against diphteria. Last year the number of deaths was 244. For every 10 children who died before the campaign for immunization only 1 dies now. The number of children who had diphtheria last year was 55,000 fewer than in 1938.

Students' International Clinical Congress

An international Clinical Congress of Medical Students, the first of its kind, will be held in Britain in July under the auspices of the British Medical Students' Association. So far one hundred and thirty delegates from thirty different countries have accepted the British invitation. A program of lectures, visits and ward rounds in various teaching hospitals, discussions, and entertainment for the visitors have been arranged to take place in the universities of London, Oxford and Birmingham. The organizational expenses have been met by grants from the British Medical Association and the International Union of Students. But the response to invitations shows that delegates from many countries have difficulty in meeting the necessary expense of attending. The British Council has generously agreed to cover the fee to the congress for a number of delegates, but many countries will have to remain unrepresented unless further support is forthcoming. An appeal has therefore been made by the honorary president of the congress, Professor J. A. Ryle, the president of the British Medical Students Association, S. Drancz, and the chairman of the Congress Organizing Committee, H. E. Reiss, for contributions from individual members of the public or from societies which have at heart the furtherance of friendship and understanding of students from all over the world to make the congress truly international in character. Contributions will be received by the Treasurer, Students' International Congress, British Medical Students Association, B.M.A. House, Tavistock Square, London, W. C. 1.

TURKEY

(From Our Regular Correspondent)

Ankara, May 18, 1948.

Turkey's Malaria Campaign

Although malaria control work has been under way twenty-five years, malaria remains the most prevalent of all preventable diseases in Turkey. At present there are malaria control administrative units in 52 of the 63 provinces, in 13,317 of the more than 40,000 villages and in 301 of the 472 districts. The control work has been divided into 40 zones where 293 specialist physicians, 1,117 malaria sanitary inspectors, 5 sanitary engineers and 2 technicians are employed. Every zone has a director, two bacteriologists and a number of physicians. Whether a region is to be included in the campaign zone depends on the spleen and blood index; if it is not alarming responsibilities are delegated to health officers or municipalities. The zones are under supervision of three specialist district health officers. All graduating physicians are required to spend three months at the Adana Malaria Institute, where they take courses in malariology, parasitology, entomology, hematology and malaria pathology and engage in field work. A special law requires every able bodied peasant to give once a year five days of unpaid work on swamp draining. Serious cases of malaria are treated at the three twenty-bed ambulatory hospitals. This has greatly reduced the mortality rate. All treatments and medicines, quinine, quinacrine, pamaquine and others, are free and paid for from the government budget. Patients who cannot take quinacrine are given quinine; children are given quinine ethylcarbonate or quinine carbonate. The antimosquito work is carried on all the year round. Once a week habitations and stables are sprayed with a 5 per cent solution of DDT. Breeding places are sprayed with DDT diluted with crude oil. In some places Paris green or "velsicol" is used.

In his 1947 report to the ministry of Health, Dr. Seyfeddin Okan, director general of the malaria campaign division, stated that there has been no malaria epidemic in any of the malaria zones and that new cases of malaria have been few.

The climate in Turkey varies. While there are still heavy snows in the Northeast, mosquitoes are coming out in the subtropic South. The species encountered in Anatolia are Anopheles maculipennis, A. bifurcatus, A. algeriensis, A. hyrcanus, A. nigripens, A. eletus and A. superpictus. Though one type is generally confined to a certain region, one or two other types are often encountered in the same place, and in the Menderes River basin all seven types are present, though A. maculipennis and A. eletus are in the majority. However, in the Seyhan and Ceyhan basin A. maculipennis are rare and few. In the Sakarya plain A. maculipennis predominate; A. eletus are few and are found only in restricted areas. Although in the villages in the environs of Istanbul A. maculipennis is the only species and is present in great numbers, in one village of the same environs, the village of Kucuk Cekmece, at the border of a lake, A. eletus are also present.

According to research in 1934-1935 by Dr. Mahmud Sabit Akalin, director of the Adana Malaria Institute (1930-1936) in the malarial regions of Western Anatolia, the domestic anopheles are the maculipennis type, A. eletus and A. superpictus. A. bifurcatus are semidomestic; A. hyrcanus, A. algeriensis, and A. nigripens are wild and prefer to feed on animals rather than on human blood. Of the A. maculipennis variety there are A. messeae, A. melanoon and A. typicus. In some parts of Anatolia where many persons suffer from chronic malaria there are no malaria epidemics; this bears out that the anopheles in those regions are of the zoophile and anthropophile types. Twenty years of research indicate that in Anatolia epidemics of malaria are spread by A. superpictus and eletus, and it is the latter in particular that spreads malaria in the Seyhan and Ceyhan plain. In the rice plantation districts of Asia Minor where three types of A. maculipennis predominate malaria epidemics are rare; in areas where A. eletus predominate from 30 to 50 per cent of the population is infected. The ten year statistics of the spleen and blood index in the Sakarya plain area indicate that in regions where the index is low A. maculipennis typicus predominate and in regions where the index is high A. eletus predominate.

BRAZIL

(From Our Regular Correspondent)

RIO DE JANEIRO, May 15, 1948.

Leishmaniasis of the Guinea Pig

Dr. Heitor Medina, of the Biological Institute of Curitiba, Parana, Brazil, described in 1946 for the first time a spontaneous infection of the guinea pig by a parasite of a new species which he called Leishmania enriettii. The original paper presented a study of the infection, which caused the appearance of skin tumors of infiltrative type, with a decided tendency to grow and finally to produce necrosis. In a recent paper a detailed study of the parasite was reported by Drs. Julio Muniz and Medina of the Oswaldo Cruz Institute.

The authors reproduce the disease in all the guinea pigs, by subcutaneous inoculation of material from lesions or from recently isolated cultures; guinea pigs from Europe and the United States were as receptive as those from Brazil. In 25 guinea pigs inoculated with the material it has not been possible to obtain either visceral lesions, as is the case with human and canine kala-azar, or ulcerative lesions of the mucous membranes as in the American tegumentary leishmaniasis. However, new lesions may appear on the skin in regions far from the point of inoculation, such as the forepaws, the ears and the genital organs. By scratching the lesions with its own contaminated nails the animal may cause infections at other points. Death during the infection is due in most cases to the invasion by bacteria. Morphologically the parasite displays peculiarities not yet found in other species of the same genus. Immunologically the guinea pig has only a low capacity of defense against the parasite, as demonstrated by the negative fixation reactions in different periods of the infection, the same results being obtained from cutaneous tests not only with L. enriettii but also with Leishmania brasiliensis antigens. L. enriettii antigen fixes complement strongly in the presence of serums from human subjects with American tegumentary leishmaniasis and causes positive reactions in the same persons when used in cutaneous tests.

Many attempts were made to infect with this species different mammals such as rhesus, hamster (Cricetus auratus), dog, white rat and mouse. Of all these animals, only 1 of 8 hamsters which were inoculated showed, at the end of six weeks, a small crusty formation in the inoculation point (the nasal region). The behavior of L. enriettii in regard to the hamster, rhesus, dog and white mouse, all of them animals susceptible to experimental infection by the species responsible for human leishmaniasis, and its inability to infect man, constitute a biologic difference that separates the organism from the human species.

The great receptivity to the infection shown by the guinea pig and the relatively short period of time in which the lesions appear render L. enriettii a choice material for chemotherapeutic studies. Following this idea the authors succeeded in the treatment and cure of the guinea pig leishmaniasis by antimonial compounds.

Study Miniature Roentgen Examinations

Dr. Heliodoro Costa, radiologist of the Health Center of the Fourth Sanitary District of Rio de Janeiro, published a study about 30,690 miniature roentgen examinations of the chest. This sanitary district is mainly residential in character, and its population includes persons of high as well as low economic condition. Of all the roentgenograms, 1,268 (4.1 per cent) revealed pathologic signs. Among them, 1,081 (3.5 per cent) revealed tuberculous lesions, 951 (3.1 per cent) being of active tuberculosis and 124 (0.4 per cent) of inactive tuberculosis. The remaining 187 pathologic pictures included 138 nontuberculous pulmonary and pleural abnormalities and 49 thoracic abnormalities.

Brief Items

Drs. Hugo B. Firmeza and Zey Bueno, of the Ministry of Labor, have been appointed on the *Committee of Health and Safety of the Work in Mines.* The committee has been constituted to draft regulations to govern the mining industry, embodying the newest developments in hygiene and safety in this field. Dr. E. Magalhães Gomes has been appointed professor of clinical medicine at the University of Rio de Janeiro. Dr. Ernani Lopes resigned the post of director of the Gustavo Riedel Psychiatric Hospital. Dr. I. Cunha Lopes has been appointed to succeed Dr. E. Lopes.

Association of Methylene Blue and Sulfadiazine in Treatment of Blastomycosis

Dr. J. Pellegrino, of the Pharmacological Department, University of Minas Geraes, published a report of his work to test the *influence of methylene blue on the in vitro action of sulfadiazine* on Blastomycosis brasiliensis, the causative agent of South American blastomycosis. As a culture medium he used Sabouraud' glucose to which were added methylene blue in 1:400,000 concentration and sulfadiazine in concentrations from 5 to 40 per cent. The experiments were made with two samples of B. brasiliensis. The hundred and forty culture tubes were kept at room temperature and examined up to the thirty-fifth day after seeding. Dr. Pellegrino found that sulfadiazine in a 5 per cent concentration does not prevent and may even favor the development of the fungus. The inhibiting action of the combined medium is stronger than that of methylene blue alone in the same concentration. Methylene blue does not affect the action of sulfadiazine on the in vitro development of B. brasiliensis in efficient concentrations of the sulfonamide compound. The author strongly suggests the association of methylene blue with the sulfonamide drugs and the specific antimycotic vaccine.

Internal Blastomycosis

Dr. Oswaldo Paulo Forattini reports 2 cases of internal blastomycosis caused by Blastomyces brasiliensis localized in the pancreatic region, without apparent involvement of skin, mucous membranes or the superficial lymph nodes. The clinical picture may lead to the diagnosis of more commonly observed diseases such as neoplasms or tuberculosis. Biopsy will reveal the true nature of the ailment. Both patients were critically ill, but sulfadiazine acted remarkably well, having cured 1 of the patients (working regularly now more than ten months and feeling fine) while the other has improved considerably but is still under treatment.

MADRID

(From Our Regular Correspondent)

May 18, 1948.

Activities of the Neuropsychiatric Clinic

At the Neuropsychiatric Clinic of the Madrid General Hospital, whose present head is Dr. J. J. Lopez Ibor, there was much activity. Last year a course was given on advances in neuropsychiatry, in which the following lecturers spoke: R. Alberca on infections of the nervous system; F. Marco Merenciano on clinical history; J. Germain on clinical psychology; E. Escardo on advances in hypothalamus physiopathology; M. Peraita on avitaminosis and the nervous system, and J. Lopez Ibor on leukotomies and the frontal lobe. This year two courses are being given: one on neurologic and psychiatric examination by Drs. Olivares, Castilla, Leoz, Morillas y Heredia, Turina y Coullant, Urquiza, Guera, Land and Llopis, with intermediate talks by Professor Lopez Ibor; and the other, with Professor Lopez Ibor the only lecturer, on vital anguish and the thymopathic circle (basic principles of a psychosomatic pathology). There are fourteen talks in this course. Professor Ibor starts from the classic descriptions of Westphal's agoraphobia and defines a clinical picture made up of observations falling under different headings in psychiatry. The nuclear part of that entity is constituted by anguish; but, departing from the classic and psychoanalytic descriptions of the anguish neurosis, he does not look on this as such a neurosis--i.e., a state arising from a psychogenic cause or produced reactively--but as an endogenous condition. In studying the symptomatology of "thymopathics" he includes what he calls vital anguish, vertigo characteristic of agoraphobic persons and a series of somatic and vegetative disorders, among which he places disturbances of space and time perception, and these he subjects to preliminary phenomenologic analysis. He points out that in thymopathic sufferers "pathic" space and time are deranged. The vegetative symptomatology is varied and curious: many conditions diagnosed as organic neuroses, the author says, really belong to this thymopathic morbid circle. He draws attention to the surprising association of these psychic conditions with a certain neurologic symptomatology, a fact which had not been pointed out before. Writer's cramp and spastic torticollis are both good examples of this. Vasovagal attacks do not belong to the epilepsy circle either, but to the thymopathic. This set of derangements must be connected with a disorder of the vital stratum of personality, widely conceived, seeing in it instinctive, somatic-visceral and affective components. He does not consider the vital stratum constituted solely by the vital feelings and thinks it better to speak of a "vital structure" than of a "vital stratum." Indeed the disturbances of the vital stratum constitute the "great thymopathic circle" in which the author includes: (*a*) endogenous melancholy and endogenous manias, in which the disturbance occurs around the vital sadness or cheerfulness pole; (*b*) anxious thymopathy, a syndrome in which disturbances occur around the vital anguish pole. (Lopez Ibor believes that vital anguish is not felt at the thought of death but rather at the possibility of the dissolution of personality and worry about this fact); (*c*) diencephalosis, that is vegetative derangements of central origin excluding those which accompany the conditions set forth in the previous paragraphs; and (*d*) certain forms of asthenia so far included in asthenic psychopathy or in constitutional neurasthenia.

These syndromes come on in phases. They are endogenous syndromes with a clear heredity, probably of the dominating type. The author advances the hypothesis that all these derangements may be related to derangements of the diencephalic regulations. This seems to find support in the studies of Hess, which prove the existence of a diencephalic motility with special characters: Hess obtains torticollis conditions in cats by means of diencephalic excitement. Research has proved that the diencephalon enters into the regulation of the psychic functions.

Lopez Ibor's investigations have been extended to the field of therapeutics. He has observed that psychotherapy plays an important, but small, part in anxious thymopathy, since this is a case of somatogenous derangement logically demanding somatic therapeutics. He obtains better results from treatment of patients by vegetative shocks (e.g., by intravenous administration of acetylcholine), and his experience in 1,500 cases supports this criterion.

POSTGRADUATE CONTINUATION COURSES FOR PHYSICIANS

Compiled by the Council on Medical Education and Hospitals
for the Period July 1, 1948 to January 15, 1949

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949

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	ALLERGY		
Cook County Graduate School of Medicine 427 S. Honore St., Chicago	Allergy, One Day Each Week	10 weeks, part time Oct. 1948	$125.00
	One Month Personal Course in Allergy (2 of these courses under different instructors)	1 month, full time Every month	200.00
	Six Months Personal Course in Allergy (2 of these courses under different instructors)	6 months, full time By appointment	500.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich. At: City of Detroit Receiving Hospital	Allergy Clinic and Conference	12 weeks, part time Sept. 20-Dec. 11, 1948	25.00
	Allergy Clinic and Conference	12 weeks, part time Dec. 13, 1948-Mar. 19, 1949	25.00
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Avenue, Brooklyn 16 At: Beth El Hospital	Allergy	8 weeks, part time, Oct. 1948	30.00
At: Kings County Hospital	Allergy	8 weeks, part time, Oct. 1948	20.00
American Academy of Allergy, 60 E. 58th St., New York At: Chicago	Orientation Course in Allergy	5 days, full time, Oct. 18-22, 1948	40.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Allergy in Children (Pediatrics PM-31)	1½ months, part time, Oct. 15-Dec. 3, 1948	30.00
	Allergy (Medicine PM-31)	6 weeks, part time, Oct. 5-Nov. 30, 1948	40.00
At: Roosevelt Hospital	Clinical Allergy (Medicine PM-81)	2 weeks, full time, Nov. 8-20, 1948	120.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St. New York	Allergy	2 months, part time, Tuesdays - arranged	50.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#302-Allergy	Part time, Fridays Jan. 7-Feb. 25, 1949	25.00
	#331-Allergy	3 weeks, full time, Nov. 4-24, 1948	200.00
	#423-Allergy for Pediatricians[1]	5 days, full time, Oct. 4-8, 1948	75.00
University of Pittsburgh School of Medicine, Bigelow Boulevard, Pittsburgh, Pa. At: School of Medicine and Montefiore Hospital	Orientation Course in Allergy	10 Thursday afternoons Beg. Sept. 2, 1948	50.00
Graham-Thomas Clinic, 201 W. Franklin St., Richmond 20, Va.	Course of Training in Clinical Allergy	12 months, July 1, 1948, full time	None
	ANATOMY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Surgical Anatomy on the Cadaver	1 day each week for 10 weeks, part time, Oct. 1948	125.00
	Two week Course, Surgical Anatomy and Clinical Surgery	July 6, Aug. 16, Sept. 27, Oct. 25 and Nov. 22, 1948, full time	150.00

References will be found on page 749

Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ANATOMY—Continued		
University of Louisville School of Medicine, 101 West Chestnut St., Louisville 2, Ky. and Kentucky State Medical Association, 620 South Third Street, Louisville 2, Ky. At: Louisville General Hospital	Surgical Anatomy	Throughout the year - Thursdays, part time Except during July and August, 1948	Not given
University of Maryland School of Medicine, Lombard and Greene Streets, Baltimore 1	General Anatomy "A"	Arranged	Arranged according to time
	Surgical Anatomy "B"	2 days a wk.-3 hrs. a day Second Semester (1948) of school year	150.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15	Surgical Anatomy[2]	8 weeks, half time Sept. 7-Oct. 30, 1948	200.00
Tufts College Medical School, Postgraduate Division 30 Bennet Street, Boston 11 At: Ziskind Research Laboratory, New England Medical Center, Boston	Surgical Anatomy[1,3]	8 weeks, part time Nov. 1-Dec. 24, 1948	200.00[4] 5.00[5]
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich.	Evolution of Human Body	12 weeks, Sept. 20-Dec. 11, 1948	25.00
	Human Inheritance	12 weeks, part time Sept. 20-Dec. 11, 1948	25.00
	Surgical Anatomy	24 weeks, part time, Dec. 13, 1948-June 18, 1949	70.00
University of Minnesota Medical School, Department of Postgraduate Education, Minneapolis 14 At: Center for Continuation Study	Review Course in Gross Anatomy	2 months, full time, Approx. July 1 to Sept. 8, 1948	150.00[4] 10.65[6]
Joint Committee on Post-Graduation Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Avenue, Brooklyn 16	Manikin	8 weeks, part time, Oct. 1948	30.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Anatomy of the Abdomen	100 hours, arranged	150.00
	Anatomy of the Thorax	100 hours, arranged	150.00
	Anatomy of the Urogenital System	130 hours, arranged	300.00
	Anatomy for the Orthopedic Surgeon	100 hours, arranged	150.00
	Applied Anatomy for the Anesthetist	125 hours, arranged	275.00
	Applied Anatomy for the General Surgeon	250 hours, arranged	375.00
	Applied Anatomy for the Otolaryngologist	150 hours, arranged	275.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Head and Neck Dissection	6 weeks, part time, arranged	150.00
New York Post-Graduate Medical School, 303 E 20th St., New York 3	General Anatomy	8 weeks, part time, arranged	100.00
	Surgical Anatomy of the Abdomen	Part time and full time - 12 weeks, 16 weeks and 8 weeks, arranged	150.00[7] 200.00[8] 225.00[9]
	Surgical Anatomy of the Female Pelvis	12 weeks, part time, arranged	150.00
	Surgical Anatomy of the Head and Neck	Part time and full time - 12 weeks, 16 weeks and 8 weeks, arranged	150.00[7] 200.00[8] 225.00[9]
	Surgical Anatomy of the Musculo-Skeletal System	Part time - 12 weeks and 16 weeks, arranged	150.00[7] 200.00[8]
	Surgical Anatomy of the Thorax and its Viscera	12 weeks, part time, arranged	150.00
	#241-Surgical Anatomy as Applied to Operative Gynecology[1]	Part time, arranged	200.00
	#522-Functional Anatomy in Relation to Orthopedics	Part time, Sept. 20-Oct. 1, 1948	75.00
New York University College of Medicine, 477 First Avenue, New York 16	General Anatomy	8 weeks, part time, arranged	100.00
	Surgical Anatomy of the Abdomen	Part time - 12 weeks, 16 weeks and 8 weeks, arranged	150.00[7] 200.00[8] 225.00[9]
	Surgical Anatomy of the Female Pelvis	12 weeks, part time, arranged	150.00
	Surgical Anatomy of the Head and Neck	Part time - 12 weeks, 16 weeks and 8 weeks, arranged	150.00[7] 200.00[8] 225.00[9]
	Surgical Anatomy of the Musculo-Skeletal System	Part time - 12 weeks, and 16 weeks, arranged	150.00[7] 200.00[8]
	Surgical Anatomy of the Thorax and its Viscera	Part time, 12 weeks, arranged	150.00
Western Reserve University School of Medicine, 2109 Adelbert Road, Cleveland 6, Ohio	Postgraduate Applied Anatomy, Dissection and Lectures	5 afternoons weekly for 2 to 6 months, Oct. 1, 1948 to April 30, 1949	70.00[10]
	ANESTHESIOLOGY		
Graduate Division of the School of Medicine, University of Southern California, Los Angeles 7 At: Los Angeles County General Hospital	Course No. 754 - Anesthesia	12 weeks, part time, Sept. 1948	50.00

References will be found on page 749

Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

ANESTHESIOLOGY—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Personal Course in Ether and Nitrous Oxide (Inhalation) Anesthesia	1 month, full time, every month	125.00
	Personal Course in Ether, Nitrous Oxide, Ethylene and Cyclopropane (Inhalation) Anesthesia	1 month, full time, every month	200.00
	Personal Course in Spinal and Intravenous Anesthesia	2 weeks, full time, every two weeks	150.00
	Two Week Personal Course in Endotracheal Anesthesia	2 weeks, full time, every two weeks	150.00
University of Louisville School of Medicine, 101 West Chestnut Street, Louisville 2 and Kentucky State Medical Association, 620 S. 3rd St., Louisville 2 At: Louisville General Hospital	Anesthesiology	1 week, full time, Fall of 1948	Not Given
	Anesthesiology (Clinical Anesthesia)	Daily, part time, arranged	Not Given
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11 At: Boston City Hospital	Anesthesiology II	1 month, part time, arranged	60.00[4] 5.00[5]
	Anesthesiology III[1]	6 months, full time, arranged	300.00[4] 5.00[5]
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich.	Anesthesia Theory and Practice	12 weeks, part time, every quarter	15.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Diagnostic and Therapeutic Nerve Blocking (Anesthesia PM-30)[1]	1 month, part time, Oct. 19-Nov. 19, 1948	50.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Clinical Anesthesiology	3 months, full time, arranged	200.00
	Division of Graduate Studies, Basic Medical Sciences-Surgery, Medicine, Obstetrics & Gynecology, Pediatrics, Radiology, Urology, Otolaryngology, Pathology, Anesthesiology	9 months, Oct. 1948	600.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Anesthesia	3 months, full time, Oct. 1, 1948	300.00
	Applied Anesthesia	3 months, full time, Oct. 1, 1948	300.00
	Applied Anesthesia	3 months, full time, Jan. 2, 1949	300.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#942-Anesthesia[1]	2 weeks, full time, Arranged	125.00 65.00[11]
New York University College of Medicine, 477 First Avenue, New York 16 At: N.Y.U. College of Medicine and Bellevue Hospital	Anesthesiology	6 months, full time, *beginning Oct. 4, 1948*	500.00
	Anesthesiology Regional	2 weeks, full time, Sept. 7-18, 1948	200.00
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4	Segmental Neuralgias; Relief by Regional Anesthesia	3 weeks, part time, 1st of each month, beginning October, 1948	200.00

ARTHRITIS

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16 At: Jewish Hospital	Arthritis	8 weeks, part time, October, 1948	30.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#301-Arthritis and Allied Rheumatic Disorders	Tuesdays, part time, Jan. 4-Feb. 15, 1949	45.00
	#330-Arthritis and Allied Rheumatic Disorders	5 days, full time, Oct. 25-29, 1948	55.00
New York University College of Medicine, 477 First Ave., New York 16 At: Bellevue Hospital	Arthritis and Rheumatic Disorders	6 weeks, part time, Oct. 4-Nov. 11, 1948	100.00

BACTERIOLOGY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich.	Antibiotic Substances	12 weeks, part time, Sept. 20-Dec. 11, 1948	15.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Bacteriology	3 months, half time, arranged	100.00
	Immunology	6 weeks, half time, arranged	50.00
	Parasitilogy	6 weeks, half time, arranged	75.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Practical Laboratory Instruction in Pathology and Bacteriology	Arranged	Arranged

References will be found on page 749

Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	BASIC SCIENCES		
College of Medical Evangelists, Graduate School of Medicine, Boyle and Michigan Avenues, Los Angeles 33	Basic Sciences (Gynecology and Obstetrics, Internal Medicine, General Surgery, Otolaryngology and Urology)	8 months, Oct. 4, 1948-June 10, 1949	Not Given
	Basic Sciences in Gynecology and Obstetrics	33 weeks, full time, Oct. 4, 1948 through June 10, 1949	700.00[4] 100.00[12] 250.00[13]
	Basic Sciences in Internal Medicine	33 weeks, full time, Oct. 4, 1948 through June 10, 1949	700.00[4] 125.00[12] 100.00[13]
	Basic Sciences in Otolaryngology	33 weeks, full time, Oct. 4, 1948 through June 10, 1949	700.00[4] 100.00[12] 300.00[13]
Indiana University School of Medicine, 1040 W. Michigan St., Indianapolis 7 At: Indiana Univ. Medical Center	Basic Science Course: Anatomy, Physiology, Pathology[14]	6 weeks, full time, beginning July 5, 1948	225.00
Tulane University of Louisiana Division of Graduate Medicine, 1430 Tulane Ave., New Orleans 13	Basic Sciences as Applied to Orthopedics	5 months, Sept. 2, 1948-Jan. 30, 1949	300.00
University of Maryland School of Medicine, Lombard and Greene Sts., Baltimore 1	Basic Science as Applied to[15] Obstetrics and Gynecology	20 weeks, full time, beginning 1st week in October, 1948	300.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Harvard Medical School and Massachusetts Eye and Ear Infirmary	Basic Sciences--Otolaryngology	8 months, full time, Oct. 1, 1948--May 31, 1949	900.00
University of Minnesota Medical School, Department of Postgraduate Education, Minneapolis 14 At: Center for Continuation Study	Basic Sciences and Their Clinical Application	12 weeks, approximately Sept. 27 to Dec. 16, 1948	150.00[4] 10.65[6]
At: University Hospitals, General Hospital, Veterans Hospital	Regular Basic Science and Clinical Courses	5 weeks, full time, (2nd Term)-July 26-Aug. 28, 1948	35.00[4] 6.00[6]
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Division of Graduate Studies, Basic Medical Sciences- Surgery, Medicine, Obstetrics and Gynecology, Pediatrics, Radiology, Urology, Otolaryngology, Pathology, Anesthesiology	9 months, Oct. 1948	800.00[16] 600.00[16]
University of Oklahoma School of Medicine and University Hospitals, 800 N.E. 13th St., Oklahoma City 4	Basic Science	4 courses of 12 weeks, 2 times weekly, beginning Sept. 1948	None
University of South Dakota School of Medicine, Vermillion	(Basic Sciences)-1. Special Anatomy, 2. Clinical Bio-Chemistry, 3. Clinical Microbiology, 4. Special Pathology, 5. Clinical Physiology	3 - 6 months, any time	None
Southwestern Medical College of Southwestern Medical Foundation, 2211 Oak Lawn, Dallas	Individual Postgraduate Work in the Basic Sciences	No set period, though usually 3 months, full time, Sept. 1948-June 1949	25.00[17]
University of Washington School of Medicine, Seattle 5	Applied Basic Science (Seminar Demonstration)[18]	Every Thursday evening, 2 to 3 hours	Not given
ity of Wisconsin Medical School, 418 N. 11 Ave., Madison 6	The Basic Sciences	6 months, Sept. 1948 to Feb. 1949	160.00[19]
	BIOCHEMISTRY		
versity College of Medicine, 1516 St. St., Detroit, Mich.	Physical Chemical Aspects of Biochemistry[1]	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	25.00
	Special Topics in Biochemistry	12 weeks, Dec. 13, 1948-Mar. 19, 1949	15.00
	CARDIOVASCULAR DISEASES		
ia Heart Association, 45 Second St., San 5 Francisco and Los Angeles	Annual Symposia on Cardiovascular Disease	3 days, San Francisco 2 days, Los Angeles Oct. 27-Nov. 1, 1948-S.F. Nov. 2-4, 1948-L.A.	15.00[20]
Association, Los Angeles County and Health Association, 117 W. 9th s 15	Annual Postgraduate Symposium on Heart Disease	2 days, Nov. 4 and 5, 1948	15.00[5]
iversity Extension, University of California Medical School, Los Angeles 24	Cardiology	12 weeks, part time, Sept. 22-Dec. 8, 1948	50.00
Graduate Division of the School of Medicine, University of Southern California, Los Angeles 7 At: Los Angeles County Hospital	Course No. 732 - Cardiology and Vascular Diseases	12 months, full time, Beginning Sept. 13, 1948	1,000.00
	Course No. 733 - Cardilogy	12 weeks, part time, Beginning Sept. 13, 1948	50.00
Chicago Medical Society, 30 N. Michigan Ave., Chicago 2 At: Thorne Hall, Northwestern University Medical School Campus	Cardiovascular and Respiratory Diseases	1 week, Sept. 20-25, 1948	50.00

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	CARDIOVASCULAR DISEASES—Continued		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Cardio-Vascular Diseases	10 weeks, part time, Oct. 1948	80.00
	Electrocardiography and Heart Disease	10 weeks, part time, Oct. 1948	125.00
	Four Week Course in Electrocardiography and Heart Disease	4 weeks, full time, Sept. 13, 1948	175.00
	Two Week Course in Electrocardiography and Heart Disease	2 weeks, full time, Aug. 2, 1948	150.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Boston City Hospital	Cardiology	Oct. 27, 1948-Jan. 12, 1949, part time	75.00
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16 At: Jewish Hospital	Electrocardiography and Clinical Cardiology	5 weeks, part time, Oct. 1948	30.00
At: Maimonides Hospital (Israel Zion Div.)	Clinical Cardiology and Advanced Electrocardiography	4 weeks, part time,	20.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Montefiore Hospital	Cardiology (Medicine PM-60)	8 months, once a week full time, Sept. 30, 1948-June 9, 1949	250.00
	Intermediate Cardiology (Medicine PM-61A)	4 months, part time, Sept. 28, 1948-Jan. 25, 1949	150.00
At: Mount Sinai Hospital	Cardiovascular Diseases (Medicine PM-31)	2 months, part time, Oct. 5-Dec. 7, 1948	125.00
	Bedside Clinics in Heart Disease (Medicine PM-46)	5 weeks, part time, Oct. 18-Dec. 6, 1948	30.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Cardiology	20 successive Wednesdays, May begin any Wednesday except during July & Aug.	150.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Diagnosis and Treatment of Diseases of the Heart	3 weeks, part time, arranged	75.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#303-Clinical Cardiology	Jan. 3-Feb. 21, 1949, part time	45.00
	#339-Cardiology	Full time, Nov. 8-12, 1948	55.00
	#424-Cardiology for Pediatricians	Full time, Dec. 6-10, 1948	75.00
New York University College of Medicine, 477 First Ave., New York 16 At: Beth Israel Hospital	Cardiovascular Diseases	12 weeks, part time, Sept. 30-Dec. 16, 1948	50.00
University of Oregon Medical School, 3181 S. W. Marquam Hill Road, Portland 1	Cardiology	5 days, full time, Oct. 25-29, 1948	50.00
American College of Physicians, 4200 Pine St., Philadelphia 4 At: Emory University School of Medicine, Atlanta, Ga.	Cadiology	1 week, Dec. 6-11, 1948	30.00[21] 60.00[22]
At: Massachusetts Gen. Hosp., Boston	Recent Advances in the Diagnosis and Treatment of Cardiovascular Disease	1½ week, Nov. 15-24, 1948	45.00[21] 90.00[22]
At: National Institute of Cardiology, Mexico, D. F.	Cardiology	2 weeks August 2-13, 1948	60.00[21] 120.00[22]
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4 and Philadelphia General Hospital	Cardiology	8 Thursdays, October, 1948	80.00
	Cardiology	8 Thursdays, January, 1949	80.00
Meharry Medical College, 1005 18th Ave. N. at Meharry Blvd., Nashville	Cardio-Renal Diseases	5 days, July 12-16, 1948	25.00
University of Wsiconsin Medical School, 410 N. Randall Ave., Madison 6	Observation Course in Cardiology	5 days, full time December 1948	25.00
	CHEST DISEASES		
Council on Postgraduate Medical Education, American College of Chest Physicians, 500 N. Dearborn St., Chicago 10 At: University Medical Extension, University of California, San Francisco 22, and Stanford University School of Medicine, San Francisco	Diseases of the Chest	5 days, Sept. 13-17, 1948	50.00
At: Stevens Hotel, Chicago	Postgraduate Course in Diseases of the Chest	1 week, Sept. 20-25, 1948	50.00
Chicago Medical Society, 30 N. Michigan Ave., Chicago 2	Cardiovascular and Respiratory Diseases	1 week, Sept. 20-25, 1948	50.00
Cook County Graduate School of Medicine, 427 S. Honroe St., Chicago 12	Physical Examination of Chest	10 weeks, part time Oct. 1948	60.00
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16	Recent Advances in Diseases of the Chest	10 weeks, Wednesday evenings, Oct. 6-Dec. 8, 1948	50.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich.	Pathology of Tuberculosis	12 weeks, Dec. 13, 1948-March 19, 1949	50.00

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CHEST DISEASES—Continued

Institution	*Title of Course*	*Schedule of Course*	*Registration Fee and/or Tuition*
American Trudeau Society, 1790 Broadway, New York At: University of Colorado School of Medicine, Denver, Colo.	Postgraduate Course in Thoracic Diseases	2 weeks, July 19-31, 1948	100.00[1]
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Bellevue Hospital	Tuberculosis and Diseases of the Chest (Medicine PM-80)	2 weeks, full time, October 11-23, 1948	50.00
At: Mount Sinai Hospital	Diseases of Chest (Medicine PM-37)	2 months, part time, Oct. 9-Dec. 4, 1948	60.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29 At: New York City Municipal Sanatorium Otisville, New York	Pulmonary Tuberculosis	3 weeks, full time, July 6-24, 1948	175.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#308-Acute and Chronic Diseases of the Chest	Thursdays, part time, Jan. 6-Feb. 24, 1949	45.00
Trudeau Foundation for the Clinical and Experimental Study of Pulmonary Disease, Saranac Lake, New York	Trudeau School of Tuberculosis	4 weeks, full time, Sept. 13-Oct. 9, 1948	100.00
University of Oregon Medical School, 3181 S. W. Marquam Hill Road, Portland 1	Diseases of the Chest	4 days, full time Nov. 29-Dec. 2, 1948	40.00
University of Virginia, Department of Medicine, Charlottesville	Diseases of the Chest	2 days, early Oct. 1948	10.00

DERMATOLOGY AND SYPHILOLOGY

University Extension, University of California Medical School, Los Angeles 24, in cooperation with University Medical Extension, University of California, San Francisco 22 At: University Extension, Los Angeles	Dermatology	8 weeks, part time, Sept. 23-Nov. 11, 1948	40.00
Graduate Division of the School of Medicine, University of Southern California, Los Angeles 7 At: Los Angeles County Hospital	Course No. 760 - Dermatology and Syphilology	12 months, full time, October 1948	1,000.00
	Course No. 764 Management of Common Cutaneous Diseases	12 weeks, part time Sept. 1948	50.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Clinical Dermatology	2 weeks, full time, every 2 weeks	75.00
	Formal Course in Dermatology	2 weeks, full time, beginning Oct. 4, 1948	100.00
	One Year Course in Dermatology	12 months, full time, by appointment	1,000.00
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16	Clinical Dermatology - "Refresher Course in Diseases of the Skin for General Practitioners"	1 week, full time, Nov. 8-13, 1948	50.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Massachusetts General Hospital	Dermatology	1 month, half time, Oct. 1948-Jan. 1949	75.00
	Dermatology and Syphilology	12 months, full time, July 1 and Oct. 1, 1948 and Jan. 1, 1949	750.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11 At: Boston Dispensary	Dermatology I	6 days, full time, Nov. 1-6, 1948	40.00[4] 5.00[5]
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich. At: City of Detroit Receiving Hospital	Dermatology Seminar	12 weeks, part time, Sept. 20-Dec. 11, 1948	15.00
	Dermatology Seminar	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	15.00
	Superficial Mycoses	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	35.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Montefiore Hospital	Common Skin Diseases and Treatment (Medicine PM-68)	1 month, part time, Oct. 4-Nov. 5, 1948	40.00
At: Mount Sinai Hospital	Venereal and Skin Diseases (Medicine PM-40)	6 weeks, part time, Oct. 6-Nov. 24, 1948	30.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Dermatology and Syphilology	6 weeks, part time, First of any month	100.00
	Dermatology and Syphilology	3 months, part time, *First of any month*	200.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#1219-Seminar in Practical Dermatology and Syphilology	5 days, full time, Sept. 13-17, 1948	55.00
	#1232-Dermatology and Syphilology for Pediatricians[1]	5 days, full time, Sept. 27-Oct. 1, 1948	75.00
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4	Dermatology-Syphilology	8 to 12 months as arranged (Oct. to Sept. annually)	800.00
University of Wisconsin Medical School, 418 N. Randall Ave., Madison 6	Observation Course in Dermatology	5 days, full time, November, 1948	25.00

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Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	DIABETES		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Medical and Surgical Diabetes	10 weeks, part time, October, 1948	80.00
Harvard Medical School, Courses for Graduates 25 Shattuck St., Boston 15 At: New England Deaconess Hospital	Diabetes Mellitus in Relation to General Medicine	5 days, full time, Oct. 18-22, 1948	75.00
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16 At: Maimonides Hospital (Israel Zion Div.)	Complications of Diabetes Mellitus	12 weeks, part time, October, 1948	30.00
At: Jewish Hospital	Diabetes	8 weeks, part time, October, 1948	20.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#313-Diabetes Mellitus, Nephritis and Hypertension	Thursdays, part time, Jan. 6-Feb. 24, 1949	45.00
	#337-Diabetes Mellitus, Nephritis and Hypertension	5 days, full time, Dec. 13-17, 1948	55.00
New York University College of Medicine, 477 First Ave., New York 16 At: Lenox Hill Hospital	Diabetes Mellitus	6 weeks, part time, Oct. 4-Nov. 11, 1948	50.00
American College of Physicians, 4200 Pine St., Philadelphia 4 At: New England Deaconess Hospital, Boston	Diabetes Mellitus and General Medicine	5 days, July 12-16, 1948	30.00[21] 60.00[22]
	ELECTROCARDIOGRAPHY		
University Extension, University of California Medical School, Los Angeles 24, in cooperation with University Medical Extension, University of California, San Francisco 22 At: University Extension, Los Angeles	Electrocardiography	3 weeks, part time, Jan. 5-20, 1949	25.00
Graduate Division of the School of Medicine, University of Southern California, Los Angeles 7 At: Los Angeles County Hospital	Course No. 734 - Electrocardiography	12 weeks, part time, Oct. 5, 1948	50.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Electrocardiography and Heart Disease	10 weeks, part time, October 1948	125.00
	Four Week Course in Electrocardiography and Heart Disease	4 weeks, full time, Sept. 13, 1948	175.00
	Personal Course in Electrocardiography and Heart Disease	2 weeks, full time, Aug. 2, 1948	150.00
	Two Week Course in Electrocardiography and Heart Disease	2 weeks, full time, Aug. 2, 1948	150.00
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16	Electrocardiography	2 weeks, full time, Aug. 16-Aug. 28, 1948	150.00
University of Louisville School of Medicine, 101 W. Chestnut St., Louisville 2, Ky. and Kentucky State Medical Ass'n., Louisville 2 t: Louisville General Hospital	Electrocardiography	16 weeks, part time, August 1948	Not Given
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11 At: Pratt Diagnostic Hospital	Electrocardiography I	5 days, full time, Oct. 18-22, 1948	40.00[4] 5.00[5]
	Electrocardiography II[23]	3 days, full time Dec. 6-8, 1948	25.00[4] 5.00[5]
University of Michigan Medical School, Department of Postgraduate Medicine, 1313 E. Ann St., Ann Arbor At: University Hospital	Electrocardiographic Diagnosis	5½ days, full time, Aug. 30-Sept. 4,1948	50.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich. At: Wayne County General Hospital, Eloise, Mich.	Electrocardiography	24 weeks, part time, Sept. 20, 1948-Mar. 19, 1949	30.00
	Beginning EKG	12 weeks, part time, Sept. 20-Dec. 11, 1948	15.00
	Beginning EKG	12 weeks, part time, Dec. 13,1948-Mar. 19,1949	15.00
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16 At: Maimonides Hospital (Israel Zion Div)	Clinical Cardiology and Advanced Electrocardiography	4 weeks, part time, October 1948	20.00
At: Jewish Hospital	Clinical Electrocardiography	5 weeks, part time, October 1948	30.00
	Electrocardiography and Clinical Cardiology	5 weeks, part time, October 1948	30.00
At: Beth El Hospital	Electrocardiography and Heart Sound Recording	5 weeks, part time, October 1948	20.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Intensive Course in Elementary Electrocardiography (Medicine PM-41)	1 week, full time, Sept. 27-Oct. 2, 1948	60.00
	Intensive Course in Advanced Electrocardiography (Medicine PM-42)	3 days, full time, December 8-11, 1948	40.00

References will be found on page 749

ELECTROCARDIOGRAPHY--Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Electrocardiography	2 weeks, part time, October 1948	100.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Electrocardiographic Interpretation	2 weeks, part time, arranged	75.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	*345-Electrocardiography	5 days, full time, Nov. 15-19, 1948	55.00
New York University College of Medicine, 477 First Ave., New York 16	Electrocardiography	16 weeks, part time, Oct. 7, 1948-Jan. 20, 1949	75.00
At: Bellevue Hospital (4th Div.)	Practical Electrocardiography for the Practicing Physician	6 weeks, part time, Oct. 6-Nov. 9, 1948	65.00
At: Beth Israel Hospital	Electrocardiography	12 weeks, part time, Sept. 30-Dec. 16, 1948	40.00

ELECTROENCEPHALOGRAPHY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Columbia-Neurological Institute	Clinical Electroencephalography and Electromyography (Neurology PM-2)[1]	Any three months between Oct. 1, 1948 and March 31, 1949, full time	150.00
At: Mount Sinai Hospital	Clinical Electroencephalography (Neurology PM-33)[1]	3 months, part time, Oct. 7, 1948-Jan. 20, 1949	60.00
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4 and Pennsylvania Mental Hygiene Institute and Hospital for Nervous and Mental Diseases	Electroencephalography	2 or 4 weeks, as arranged	200.00 300.00

ENDOCRINOLOGY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Graduate Division of the School of Medicine, University of Southern California, Los Angeles 7 At: Los Angeles County Hospital	Course No. 735 - Endocrinology	12 weeks, part time, October 6, 1948	50.00
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16	Diseases of the Endocrines:- Fundamental Physiology and Diagnostic Methods	10 days, full time Oct. 18-29, 1948	100.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Massachusetts General Hospital	Pediatric Endocrinology	1 week, full time, Oct. 4-9, 1948	75.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich.	Endocrinology	12 weeks, part time, Sept. 20-Dec. 11, 1948	35.00
	Experimental Endocrinology	12 weeks, Sept. 20-Dec. 11, 1948	35.00
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16 At: Beth El Hospital	Endocrine Disorders in Children and Adolescents	8 weeks, part time, October 1948	20.00
At: Jewish Hospital	Disorders of the Endocrine System	6 weeks, part time, October 1948	40.00
	Female Sex Endocrinology	10 weeks, part time, October 1948	20.00
At: Jewish Sanitarium and Hospital for Chronic Diseases	Applied Endocrinology	5 weeks, part time, October 1948	20.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Endocrinological Diseases (Medicine PM-39)	2 months, part time, Oct. 11-Dec. 6, 1948	30.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Endocrinology	3 weeks, full time, December 1948	150.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	*222-Gynecological Endocrinology	24 sessions, part time beginning Oct. 5, 1948	150.00
	*222-Gynecological Endocrinology	24 sessions, part time, beginning Jan. 4, 1949	150.00
	*309-Diseases of the Thyroid and Other Endocrine Glands and Disorders of Nutrition	Fridays, part time, Jan. 7-Feb. 25, 1949	45.00
Association for the Study of Internal Secretions, 1200 N. Walker St., Oklahoma City 3, Okla. At: Los Angeles, Calif.	Endocrinology	Not given	Not given
American College of Physicians, 4200 Pine St., Philadelphia 4 At: Thorne Hall, Northwestern University, Chicago	Endocrinology	1 week, Nov. 8-13, 1948	30.00[21] 60.00[22]

ENDOSCOPY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Practical Cystoscopy	10 days, part time, every two weeks	150.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Massachusetts General Hospital	Endoscopy	2 months, arranged	250.00[24]

References will be found on page 749

Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ENDOSCOPY—Continued		
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Columbia-Presbyterian Medical Center	Gastroscopy (Medicine PM-2)[1]	2 months, part time, arranged	250.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Gastroscopy	2 weeks, part time, arranged	200.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#211-Cystoscopy and Endoscopy	15 sessions, part time, beginning Sept. 27, 1948	75.00
	#211-Cystoscopy and Endoscopy	15 sessions, part time, beginning Nov. 8, 1948	75.00
	#211-Cystoscopy and Endoscopy	15 sessions, part time, beginning Jan. 3, 1949	75.00
Temple University School of Medicine, 3400 N. Broad St., Philadelphia At: University Hospital and School of Medicine	Fall Postgraduate Courses in Bronchology and Esophagology	2 weeks, Sept. 27-Oct. 8, 1948	250.00
	Fall Postgraduate Courses in Bronchology and Esophagology	2 weeks, Oct. 25-Nov. 5, 1948	250.00
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4	Bronchoesophagology, Gastroscopy and Laryngeal Surgery	2 weeks, full time, beginning July 19, 1948	250.00
	Bronchoesophagology, Gastroscopy and Laryngeal Surgery	2 weeks, full time, beginning Sept. 13, 1948	250.00
	FRACTURES		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Fractures	10 weeks, part time, October 1948	125.00
	Fractures and Traumatic Surgery	2 weeks, full time, beginning Oct. 25, 1948	125.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Massachusetts General Hospital	Treatment of Fractures and Other Traumatic Conditions	10 days, full time, Sept. 20-30, 1948	150.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Fractures and Allied Trauma	3 weeks, full time, Fall semester	150.00
	GASTROENTEROLOGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Gastroenterology	10 weeks, part time, October 1948	100.00
	Two Week Course in Gastroenterology	2 weeks, full time, beginning Oct. 25, 1948	100.00
	Two Week Course in Gastroscopy and Gastroenterology	2 weeks, full time, beginning Nov. 8, 1948	200.00
	Two Week Personal Course in Gastroscopy and Gastroenterology	2 weeks, full time, beginning Sept. 27, 1948	200.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich. At: City of Detroit Receiving Hospital	Gastroenterology and Hematology Clinic	12 weeks, part time, Sept. 20-Dec. 11, 1948	15.00
	Gastroenterology and Hematology Clinic	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	15.00
Joint Committee on Post-Graduate Education Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16 At: Greenpoint Hospital	Gastroenterology	6 weeks, part time, beginning October 1948	20.00
At: Jewish Hospital	Gastroenterology	5 weeks, part time, beginning October 1948	20.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Gastrointestinal Diseases (Medicine PM-32)	2 months, part time Oct. 6-Dec. 7, 1948	80.00
At: Montefiore Hospital	Gastroenterology (Medicine PM-62)	2½ months, part time, Nov. 9, 1948-Feb. 15, 1949	75.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Gastroenterology	1 month, part time, Fall 1948	100.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Gastroenterology	6 weeks, part time beginning Oct. 1, 1948	50.00
	Gastroenterology	6 weeks, part time, beginning Jan. 2, 1949	50.00
	Gastroenterology	3 months, part time, beginning Oct. 1, 1948	75.00
	Gastroenterology	3 months, part time, beginning Jan. 2, 1949	75.00
	Proctology, Gastroenterology, Operative Proctology (Cadaver)	6 weeks, part time, beginning Oct. 1, 1948	200.00
	Proctology, Gastroenterology, Operative Proctology (Cadaver)	6 weeks, part time, beginning Jan. 2, 1949	200.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#311-Gastroenterology	7 weeks, part time, Jan. 5-Feb. 23, 1949	45.00
	#343-Gastroenterology	10 days, full time, Nov. 29-Dec. 10, 1948	100.00

References will be found on page 749

Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
GASTROENTEROLOGY—Continued			
New York University College of Medicine, 477 First Ave., New York 16 At: Beth Israel Hospital	Gastroenterology	8 weeks, part time, Sept. 27-Nov. 19, 1948	65.00
	Gastroenterology	8 weeks, part time, Winter, 1948	65.00
At: Lenox Hill Hospital	Gastroenterology	7 weeks, part time, Oct. 4-Nov. 19, 1948	60.00
Frank E. Bunts Educational Institute and Cleveland Clinic, Euclid Ave. at 93rd St., Cleveland, Ohio	Gastroenterology	2½ days, Oct. 7, 8, 9, 1948	10.00
American College of Physicians, 4200 Pine St., Philadelphia 4 At: Graduate Hospital of the University of Pennsylvania	Gastroenterology	1 week, Dec. 6-11, 1948	30.00[21] 60.00[22]
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4	Clinical Gastroenterology	16 weeks, 500 hours, October 1948	400.00
GENETICS AND ANTHROPOLOGY			
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich.	Readings in Physical Anthropology	12 weeks, part time, Sept. 20-Dec. 11, 1948	25.00
GERIATRICS			
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Geriatrics (Medicine PM-47)	3½ months, part time, Oct. 7, 1948-Jan. 27, 1949	65.00
HEMATOLOGY			
Graduate Division of the School of Medicine, University of Southern California, Los Angeles 7 At: Los Angeles County Hospital	Course No. 738 - Hematology	12 weeks, part time, beginning Jan. 3, 1949	50.00
Chicago Medical Society, 30 N. Michigan Ave., Chicago 2 At: Thorne Hall, Northwestern University Medical School Campus, Chicago	Hematology and Neurology	1 week, Sept. 13-18, 1948	50.00
ok County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Hematology	10 weeks, part time, September 1948	100.00
	One Week Personal Course in Hematology	1 week, full time, beginning Oct. 4, 1948	100.00
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16	Hematologic Diagnosis	2 weeks, full time, Aug. 2-14, 1948	100.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11 At: Ziskind Research Laboratory, New England Medical Center	Hematology I	6 days, full time, Oct. 25-30, 1948	40.00[4] 5.00[5]
Wayne University College of Medicine, 1516 St. Antoine St. Detroit, Mich.	Advanced Hematology	12 weeks, part time, Sept. 20-Dec. 11, 1948	50.00
	Advanced Hematology	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	50.00
	Beginning Hematology	12 weeks, part time, Sept. 20-Dec. 11, 1948	50.00
	Hematology Case Study	12 weeks, Sept. 20-Dec. 11 1948	15.00
	Hematology Case Study	12 weeks, Dec. 13, 1948-Mar. 19, 1949	15.00
At: City of Detroit Receiving Hospital	Gastroenterology and Hematology Clinic	12 weeks, part time, Sept. 20-Dec. 11, 1948	15.00
	Gastroenterology and Hematology Clinic	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	15.00
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16 At: Jewish Hospital	Clinical Hematology	8 weeks, part time, beginning October 1948	20.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32	Advanced Hematology (Medicine PM-67)	3 or 3½ months, part time, Sept. 23, 1948-Jan. 6, 1949	75.00
At: Montefiore Hospital	Clinical Hematology (Medicine PM-64)	4 months, part time, Sept. 14, 1948-Jan. 25, 1949	75.00
At: Mount Sinai Hospital	Hematology (Medicine PM-35)	2 months, part time, Oct. 11, 1948-Dec. 6, 1948	60.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Hematology	2 months, part time, arranged	50.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#306-Clinical Hematology	Wednesdays, part time, Jan. 5-Feb. 23, 1949	30.00

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	HEMATOLOGY—Continued		
New York University College of Medicine, 477 First Ave., New York 16 At: Lenox Hill Hospital	Hematology	6 weeks, part time, Oct. 6-Nov. 10, 1948	50.00
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4 and Bryn Mawr Hospital Laboratories	Clinical and Laboratory Hematology	6 weeks, beginning Oct. 1, 1948	200.00
	Clinical and Laboratory Hematology	6 weeks, beginning Dec. 1, 1948	200.00
Baylor University College of Medicine, 509 Lincoln Ave., Houston 1, Texas	Diseases of the Blood	3 to 4 days, full time, Nov. or Dec., 1948	25.00
	HISTOLOGY		
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich.	Advanced Histology	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	35.00
	INTERNAL MEDICINE		
Graduate Division of the School of Medicine, University of Southern California, Los Angeles, 7	Clinical Review of Internal Medicine (Course No. 730)	12 weeks, full time, Sept. 13, 1948	250.00
	Clinical Review of Internal Medicine (Course No. 730)	12 weeks, full time, Jan. 3, 1949	250.00
At: Los Angeles County Hospital	Internal Medicine (Course No. 731)	9 months, full time, January 1949	750.00
Emory University School of Medicine, 50 Armstrong St., Atlanta, Ga. At: Grady Memorial Hospital	Internal Medicine	2 weeks to 1 year, full time, arranged	125.00[25] 12.00[26]
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Two week Course in Internal Medicine	2 weeks, full time, Oct. 11, 1948	75.00
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16	Application of Physiology and Biochemistry to Medicine	25 weeks, part time, Oct. 1, 1948-Mar. 3, 1949	150.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15	Internal Medicine	3 months, full time, Sept. 1, 1948-Nov. 30, 1948	375.00
At: Boston City Hospital	Internal Medicine	12 months, full time, Sept. 1, 1948	600.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11 At: Boston Dispensary	Clinical Medicine	4 weeks, mornings, arranged	60.00[4] 5.00[5]
At: Pratt Diagnostic Hospital	Internal Medicine	2 weeks, full time Oct. 4-16, 1948	75.00[4] 5.00[5]
	Internal Medicine (As related to Basic Sciences)	8 weeks, Jan. 3-Feb. 26, 1949	200.00[4] 5.00[5]
	Internal Medicine[27]	9 months, full time, Oct. 4, 1948-June 30, 1949	750.00[4] 5.00[5]
University of Michigan Medical School, 1313 E. Ann St., Ann Arbor At: University Hospital	Clinical Internal Medicine	Thursday afternoons throughout 1st semester, 1948	50.00
University of Minnesota Medical School, Department of Postgraduate Education, Minneapolis 14 At: Center for Continuation Study	Internal Medicine	To be announced	Not given
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of of Brooklyn, 1313 Bedford Ave., Brooklyn 16 At: Coney Island Hospital	Peripheral Vascular Diseases	8 weeks, part time, beginning Oct. 1948	20.00
At: Jewish Hospital	Hypertension and Nephritis	8 weeks part time, beginning Oct. 1948	20.00
	Peripheral Vascular Diseases	4 weeks, part time beginning Oct. 1948	20.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Montefiore Hospital	Peripheral Vascular Diseases (Medicine PM-65)	4 months, part time, Sept. 23, 1948-Jan. 20, 1949	75.00
At: Mount Sinai Hospital	Symposium on Internal Medicine (Medicine PM-30)	8 weeks, full time, Oct. 5, 1948-Dec. 7, 1948	350.00
	Diseases of the Liver (Medicine PM-33)	2 months, part time, Oct. 5, 1948-Dec. 2, 1948	35.00
	Diseases of the Kidney (Medicine PM-34)	2 months, part time, Oct. 11, 1948-Dec. 6, 1948	15.00
	Diseases of Metabolism (Medicine PM-38)	2 months, part time, Oct. 7, 1948-Dec. 7, 1948	40.00
	Peripheral Vascular Disorders (Medicine PM-43)	5 weeks, Oct. 14, 1948 Dec. 8, 1948	40.00
	Relation of Skin to Internal Medicine (Medicine PM-69)	3 months, part time, Sept. 13, 1948-Dec. 27, 1948	40.00
Cornell University Medical College, 1300 York Ave., New York 21 At: Bellevue Hosp., Div. II	Graduate Course in Internal Medicine	6 months, full time, continuously	300.00

References will be found on page 749

Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

INTERNAL MEDICINE—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Division of Graduate Studies, Basic Medical Sciences - Surgery, Medicine, Obstetrics and Gynecology, Pediatrics, Radiology, Urology, Otolaryngology, Pathology, Anesthesiology	9 months, October 1948	600.00
	Internal Medicine	1 month, full time, monthly except July and August	150.00
	Internal Medicine	2 months, full time,	300.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#300-Seminar In Internal Medicine	8 weeks, full time, Jan. 3-Feb. 25, 1949	300.00
	#307-Problems in Diagnosis (Internal Medicine)	Mondays, part time, Jan. 3-Feb. 21, 1949	45.00
	#310-Diseases of the Liver and Biliary Tract	Wednesdays, part time, Jan. 5-Feb. 23, 1949	30.00
	#315-Psychological Aspects of Internal Medicine	Fridays, part time, Jan. 7-Feb. 25, 1948	25.00
	#319-Peripheral Vascular Diseases	Tuesdays, part time, Jan. 4-Feb. 15, 1949	30.00
	#340-Peripheral Vascular Diseases	5 days, full time, Oct. 18-22, 1948	55.00
New York University College of Medicine, 477 First Ave., New York 16 At: Bellevue Hospital	Internal Medicine	4 weeks, part time, Sept. 27-Oct. 22, 1948	60.00
	Internal Medicine	8 weeks, part time, Sept. 27-Nov. 19, 1948	00.00
At: Beth Israel Hospital	Internal Medicine	4 weeks, part time, Oct. 4-29, 1948	75.00
University of Cincinnati College of Medicine, Eden and Bethesda Aves., Cincinnati and American College of Physicians, 4200 Pine St., Philadelphia 4 At: Cincinnati General Hospital	Internal Medicine	6 days, Sept. 20-25, 1948	30.00[21] 60.00[22]
American College of Physicians, 4200 Pine St., Philadelphia 4 At: University of Michigan Medical School, Ann Arbor	Internal Medicine	2 weeks, Oct. 18-29, 1948	60.00[21] 120.00[22]
At: University of Cincinnati College of Medicine, Cincinnati, Ohio	Internal Medicine with Emphasis on Pathological Physiology	1 week September 13-18, 1948	30.00[21] 60.00[22]
At: University of Pittsburgh School of Medicine, Pittsburgh	Internal Medicine	2 weeks, Sept. 20-Oct. 2, 1948	60.00[21] 120.00[22]
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4	Internal Medicine	8 months, Oct. 1948 June, 1949	800.00
Dallas Southern Clinical Society, Medical Arts Bldg., Dallas 1, Texas and Dallas Academy of Internal Medicine	Metabolic Disorders	4 days, Sept. 21, 22, 23 and 24, 1948	25.00
Washington State Medical Association, 218 Cobb Bldg., Seattle At: King County Hospital	Post-Graduate Course in Internal Medicine	2 weeks, Sept. 13-25, 1948	25.00
University of Wisconsin Medical School, 418 N. Randall Ave., Madison 6	Observation Course in Medicine for Specialists[1]	Arranged	100.00[11]

MALIGNANT DISEASES

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Los Angeles County Medical Association, 1925 Wilshire Blvd., Los Angeles 5 At: Before Sections and Branches	Cancer; Early Diagnosis	Twice a month, continuous 2 hours - irregular	None
State of California, Department of Public Health, Chronic Disease Service, 751 Phelan Bldg., 760 Market St., San Francisco 2 in cooperation with Cancer Commission, California Medical Association At: Nonmetropolitan areas of the State	Cancer Symposia	Either 1 or 2 days, dates to be determined	None
Colorado State Medical Society, Rocky Mountain Cancer Foundation, Colorado Chapter of American Cancer Society, 535 Republic Bldg., Denver At: Denver	Rocky Mountain Cancer Conference	2 days, full time, July 14 and 15, 1948	None
National Cancer Institute, Bethesda 14, Md. At: Various Hospitals throughout the country	Traineeship in Diagnosis and Treatment of Cancer	1 to 3 years	None[28]
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Massachusetts General Hospital	Cytological Diagnosis of Cancer by the Papanicolaou Method	2 weeks, full time Sept. 20-Oct. 2, 1948	150.00

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949— Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
MALIGNANT DISEASES—Continued			
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16 At: Brooklyn Cancer Institute	Diagnosis and Treatment of Neoplastic Disease	8 weeks, part time, beginning Oct. 1948	30.00
Cornell University Medical College, 1300 York Ave., New York 21	Cytologic Diagnosis of Cancer	2 weeks, full time, Nov. 8-20, 1948	100.00
University of Oregon Medical School, 3181 S.W. Marquam Hill Rd., Portland 1, American Cancer Society	Diagnosis and Treatment of Diseases of Malignant Growths	September 27-October 1, 1948	Not given
Tennessee State Medical Association, Post-graduate Committee, 4 South Dunlap, University Center, Memphis 3 AT: 45 county seat towns as teaching centers	Cancer	10 weeks, part time, July 1, 1948-August 31, 1949	10.00 9.50[29]
State Medical Society of Wisconsin, 917 Tenney Bldg., Madison 3, in cooperation with the Wisconsin Division of the American Cancer Society At: Fond du Lac, Wis.	Postgraduate Cancer Teaching Clinics	1 day, full time, July 15, 1948	Not given
At: Janesville, Wis.	Postgraduate Cancer Teaching Clinics	1 day, full time, July 20, 1948	Not given
At: LaCrosse, Wis.	Postgraduate Cancer Teaching Clinics	1 day, full time, July 19, 1948	Not given
At: Racine, Wis.	Postgraduate Cancer Teaching Clinics	1 day, full time, July 14, 1948	Not given
At: Stevens Point, Wis.	Postgraduate Cancer Teaching Clinics	1 day, full time, July 16, 1948	Not given
MEDICINE, GENERAL			
State Medical Societies of Six New England States (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut) At: Copley Plaza Hotel, Boston	New England Postgraduate Assembly	3 days, Nov. 3-5, 1948	2.00
Los Angeles County Medical Association, 1925 Wilshire Blvd., Los Angeles 5 At: North Hollywood and East Los Angeles	Practical Medicine Lecture Series	18 hours weekly, each series, continuous - Series 1 every Wednesday; Series 2 every Tuesday	None
University Extension, University of California Medical School, Los Angeles 24, in cooperation with University Medical Extension, University of California, San Francisco 22 At: University Extension, Los Angeles	General Medicine	12 weeks, part time, Sept. 21-Dec. 7, 1948	50.00
California Medical Association, Postgraduate Activities Committee, 450 Sutter St., San Francisco 8 At: 15 Centers outside the Metropolitan Areas	Postgraduate Seminars (Extramural)	1 day full time, dates arranged	None
Stanford University School of Medicine, 2398 Sacramento St., San Francisco 15	Postgraduate Review Courses in Medicine	5 days, Sept. 6-10, 1948	50.00
University Medical Extension, University of California, San Francisco 22 At: University of California Medical Center	Continuation Course in General Medicine General Medicine	12 weeks, part time, probably Sept. to Dec. 1948 12 evenings, Sept. 20 through Dec. 6, 1948	Not given 40.00
San Joaquin County Medical Society, Committee on Postgraduate Activities, Stockton, California	Stockton Post-graduate Study Club	8 Thursday evenings to be arranged through Sept., Oct. and Nov., 1948	10.00
Connecticut State Medical Society, 258 Church St., New Haven 10 and Yale University School of Medicine	Connecticut Clinical Congress	3 days, full time, September 1948	3.00
Medical Society of the District of Columbia, 1718 M St., N.W., Washington 6, D.C.	Nineteenth Annual Scientific Assembly	3 days, full time, Sept. 27-29, 1948	3.00
Graduate School of Medicine, University of Florida, 2033 Riverside Ave., Jacksonville, in cooperation with the Florida Medical Association and the Florida State Board of Health At: Duval County Hospital	Special Graduate Course	2 weeks, full time, Sept. 13-25, 1948	Not given
American Congress of Physical Medicine, 30 N. Michigan Avenue, Chicago 2 At: Hotel Statler, Washington, D. C.	Instruction Course (Ten Lectures Based Primarily on Physics and Physiology)	10 hours, Sept. 7, 8, 9 and 10, 1948	15.00[30] 2.00[31]
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Varicose Veins	2 weeks, part time, 1st and 3rd Wednesday of each month	40.00

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

MEDICINE, GENERAL—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Educational Committee, Illinois State Medical Society, 30 N. Michigan Ave., Chicago. Miss Ann Fox, Secretary At: 10 Medical Councilor Districts	Postgraduate Conference (The first conference of the coming season will be Centralia, Marion County, September 16)	12 conferences for 1948-1949 season	
Mississippi Valley Medical Society, 209-224 W.C.U. Bldg., Quincy, Ill. At: Abraham Lincoln Hotel, Springfield, Ill.	Post-Graduate Medical Assembly for General Practitioners	3 days, Sept. 29-30 and Oct. 1, 1948	None
Indiana University School of Medicine, 1040 W. Michigan St., Indianapolis 7 At: Indiana University Medical Center	Review Course for General Practitioners	2 days, full time, Sept. 29-30, 1948	10.00[32]
St. Elizabeth Hospital, Lafayette, Ind. and Indiana University School of Medicine, 1040 W. Michigan St., Indianapolis 7 At: St. Elizabeth Hospital, Lafayette	Postgraduate Medical Education	1st Tuesday of each month, part time	None
Iowa State Medical Society, 505 Bankers Trust Bldg., Des Moines 9 At: Carroll, Iowa	Carroll County Postgraduate Course	Early Fall, 1948	Not given
American Roentgen Ray Society, University Hospital, Iowa City, Iowa At: Chicago	Instructional Courses	4 days, part time, Sept. 14-17, 1948	5.00[33] None[34]
State University of Iowa College of Medicine, University Campus, Iowa City	Physicians Clinical Conference General Medicine	5 days, Sept. 27-Oct. 1, 1948	None
	Physicians Clinical Conference General Medicine	5 days, Oct. 25-29, 1948	None
	Physicians Clinical Conference General Medicine	5 days, Nov. 22-26, 1948	None
University of Maryland School of Medicine, Lombard and Greene Sts., Baltimore 1 At: University Hospital and County Hospitals in Maryland	Post-Graduate Extension Lecture Series	Once a month, Oct. 1948-May 1949	15.00[35]
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Boston City Hospital	Medical Diagnosis and Treatment	Wednesdays, part time, Oct. 6, 1948-May 25, 1949	100.00
Lahey Clinic, 605 Commonwealth Ave., Boston 15 At: Clinic Auditorium	Informal Instruction (Lecture Meetings)	July to December 1948	None
	Medical Clinics	Tuesdays and Thursdays throughout the entire year	Not given
	Staff Meetings	8 months, part time, Oct. 1948-May 1949	Not given
	Two-Hour Clinical Symposium on General Clinical Subjects	Wednesday nights, throughout the year, Beginning Oct. 1, 1948	Not given
At: New England Baptist Hospital	Clinical Conferences	Saturdays at 11:00 a.m.	Not given
At: New England Deaconess Hospital	Clinical Conferences	Saturdays at 11:00 a.m.	Not given
Massachusetts Medical Society, 8 The Fenway, Boston At: Various Cities throughout Massachusetts	Post-graduate Extension Course	3 months, part time, Oct. 1-Dec. 31, 1948	None
University of Michigan Medical School, Department of Postgraduate Medicine, 1313 E. Ann St., Ann Arbor At: University Hospital	Clinical Exercises for Practitioners	Wednesdays, throughout 1st semester, 1948	50.00
University of Michigan Medical School, Wayne University College of Medicine, Michigan Department of Health and Michigan State Medical Society At: Ann Arbor, Battle Creek, Bay City, Flint, Grand Rapids, Jackson, Lansing, Mt. Clemens, Saginaw, Traverse City, Saulte Ste. Marie, Marquette, Houghton and Ironwood, Michigan	Extramural Course	2 days in autumn, 1948, dates to be arranged later	None
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich.	Ward Rounds for Veterans	12 weeks, Summer quarter	Not given
At: City of Detroit Receiving Hospital		12 weeks, part time, Sept. 20-Dec. 11, 1948	15.00
At: Wayne County General Hospital, Eloise, Mich.	Diagnostic Conference	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	15.00
Mississippi State Sanatorium, Sanatorium, Miss.	Post-graduate	2 weeks, to 6 months, throughout the year	None
Kansas City Southwest Clinical Society, 630 Shukert Bldg., Kansas City 6, Mo.	Annual Fall Clinical Conference	4 days, Oct. 4-7, 1948	15.00[36]
Omaha Mid-West Clinical Society, 1031 Medical Arts Bldg., Omaha 2, Nebraska	Sixteenth Annual Assembly	5 days, part time, Oct. 25-29, 1948	Registration fee only
University of Nebraska College of Medicine, 42nd St. and Dewey Ave., Omaha, Nebraska	Refresher Course for Practicing Physicians	4 days, Oct. 1948	25.00

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
MEDICINE, GENERAL—Continued			
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16	Radiobiological Foundations of Medicine and Public Health	10 weeks, part time, beginning October 1948	30.00
At: Greenpoint Hospital	Sterility	12 weeks, part time, beginning October 1948	20.00
University of Buffalo School of Medicine, Post-graduate Department, 24 High St., Buffalo	Course for General Practitioners	2 weeks, Sept. 6-18, 1948	60.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Course for General Practitioners	6 weeks, full time, beginning Oct. 1, 1948	100.00
	Course for General Practitioners	3 months, full time, beginning Oct. 1, 1948	200.00
	Course for General Practitioners	6 weeks, full time, beginning Jan. 2, 1949	100.00
	Course for General Practitioners	3 months, full time, beginning Jan. 2, 1949	200.00
Council of Rochester Regional Hospitals, 800 Reynolds Arcade Bldg., Rochester 4, N. Y. and Rochester General Hospital	Current Diagnostic Procedures[37]	5 days, full time, Fall, 1948	None
Radiological Society of North America, Inc., Medical Arts Bldg., Syracuse, New York At: San Francisco, California	Refresher Courses	6 days, part time, Dec. 5-10, 1948	3.00[38] 10.00[39]
University of North Carolina School of Medicine and Extension Division, Chapel Hill and North Carolina Division of the American Cancer Society At: Three or four centers in N. C.	Medical Postgraduate Extension Course	6 to 8 weeks, part time, Oct. to Dec. 1948 probably	20.00 30.00 30.00
University of Cincinnati College of Medicine, Eden and Bethesda Aves., Cincinnati, Ohio and Society of General Physicians, Cincinnati	General Medicine	1 month, twice weekly, Oct. and Nov. 1948	Not given
Ohio State University College of Medicine, 11th and Neil Aves., Columbus, Ohio	Postgraduate Course in General Medicine for General Practitioners	5½ days, Dec. 6-11, 1948	40.00
Oklahoma City Clinical Society, 512 Medical Arts Bldg., Oklahoma City	Oklahoma City Clinical Society Conference	4 days, full time, Oct. 25-28, 1948	15.00
American College of Physicians, 4200 Pine St., Philadelphia 4 At: New England Deaconess Hospital, Boston, Mass.	Diabetes Mellitus and General Medicine	5 days, July 12-16, 1948	60.00[22] 30.00[21]
Medical Society of the State of Pennsylvania, 500 Penn Ave., Pittsburgh At: Allentown	Graduate Education Institute of The Medical Society of the State of Pennsylvania	5 weeks, 1 day a week, Sept. 21 and 28; Oct. 12, 19 and 26, 1948	25.00[40]
At: Clearfield	Graduate Education Institute of The Medical Society of the State of Pennsylvania	5 weeks, 1 day a week, Sept. 23 and 30; Oct. 14, 21 and 28, 1948	25.00[40]
At: Erie	Graduate Education Institute of The Medical Society of the State of Pennsylvania	5 weeks, 1 day a week, Sept. 22 and 29; Oct. 13, 20 and 27, 1948	25.00[40]
At: Harrisburg	Graduate Education Institute of The Medicab Society of the State of Pennsylvania	5 weeks, 1 day a week, Sept. 23 and 30; Oct. 14 and 28; Nov. 4, 1948	25.00[40]
At: Johnstown	Graduate Education Institute of The Medical Society of the State of Pennsylvania	5 weeks, 1 day a week, Sept. 23 and 30; Oct. 14, 21 and 28, 1948	25.00[40]
At: Lancaster	Graduate Education Institute of The Medical Society of the State of Pennsylvania	5 weeks, 1 day a week, Sept. 22 and 29; Oct. 13, 20 and 27, 1948	25.00[40]
At: Oil City	Graduate Education Institute of The Medical Society of the State of Pennsylvania	5 weeks, 1 day a week, Sept. 22 and 29; Oct. 13, 20 and 27, 1948	25.00[40]
At: Washington	Graduate Education Institute of The Medical Society of the State of Pennsylvania	5 weeks, 1 day a week, Sept. 22 and 29; Oct. 13, 20 and 27, 1948	25.00[40]
At: Wilkes-Barre	Graduate Education Institute of The Medical Society of the State of Pennsylvania	5 weeks, 1 day a week, Sept. 22 and 29; Oct. 13, 20 and 27, 1948	25.00[40]
At: Williamsport	Graduate Education Institute of The Medical Society of the State of Pennsylvania	5 weeks, 1 day a week, Sept. 22 and 29; Oct. 13, 20 and 27, 1948	25.00[40]
Anderson County Medical Society (Piedmont Post-graduate Assembly), Anderson, S. C.	Piedmont Post-Graduate Clinical Assembly	2 days, about Sept. 14 and 15, 1948	5.00
Medical College of South Carolina, Alumni Association, 16 Lucas St., Charleston	Alumni Post-Graduate Seminar	3 days, full time, Nov. 2, 3 and 4, 1948	15.00
Post-Graduate Medical Assembly of South Texas, 229 Medical Arts Bldg., Houston At: San Houston Coliseum and Music Hall	Post-Graduate Medical Assembly of South Texas	3 days, Dec. 7, 8 and 9, 1948	15.00
Interstate Postgraduate Medical Association of North America, 16 N. Carroll St., Madison, Wis. At: Public Auditorium, Cleveland, Ohio	Interstate Postgraduate Medical Association 33rd International Medical Assembly	4 days, full time, Nov. 9-12, 1948	5.00[5]

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
MEDICINE, GENERAL—Continued			
Jackson Clinic, 16 S. Henry St., Madison 3, Wis. At: Methodist Hospital	Post-Graduate	1 day monthly	None
State Medical Society of Wisconsin, 917 Tenney Bldg., Madison 3, Wis. At: Milwaukee, Wisconsin	Annual Meeting	3 days, full time, Oct. 4, 5 and 6, 1948	Not given
University of Wisconsin Medical School, 418 N. Randall Ave., Madison 6, Wis.	A Course for Practitioners of General Medicine	5 days, full time, October 1948	25.00
NEUROLOGY AND PSYCHIATRY			
Graduate Division of the School of Medicine, University of Southern California, Los Angeles 7 At: Los Angeles County Hospital	Course No. 742 – Psychosomatic Medicine	12 weeks part time beginning Jan. 5, 1949	50.00
University Medical Extension, University of California, San Francisco 22 At: The Langley Porter Clinic, University of California Medical Center	Psychiatry and Neurology	12 weeks, full time, beginning Sept. 1948	200.00
At: University of California Medical Center	Psychiatry and Neurology	12 weeks, full time, Probably middle of Sept. to middle of Dec., 1948	To be announced
Catholic University of America, Department of Psychology and Psychiatry, Washington 17, D. C.	Child Psychiatry	2 hours a week, Oct. 1, 1948 to Jan. 31, 1949	5.00[5] 25.00[4]
	Clinical Psychology	2 hours a week, Oct. 1, 1948 to Jan. 31, 1949	5.00[5] 25.00[4]
	Introduction to Psychiatry	2 hours a week, Oct. 1, 1948 to Jan. 31, 1949	5.00[5] 25.00[4]
	Psychological Diagnosis	2 hours a week, Oct. 1, 1948 to Jan. 31, 1949	5.00[5] 25.00[4]
	Psychopathology	1 hour a week, Oct. 1, 1948 to Jan. 31, 1949	5.00[5] 12.50[4]
	Seminar in Psychotherapy I	2 hours a week, Oct. 1, 1948 to Jan 31, 1949	5.00[5] 25.00[4]
	Seminar in Psychotherapy III	2 hours a week, Oct. 1; 1948 to Jan. 31, 1949	5.00[5] 25.00[4]
At: St. Elizabeth's Hospital	Clinical Psychiatry	2 hours a week, Oct. 1, 1948 to Jan. 31, 1949	5.00[5] 25.00[4]
	Group Psychotherapy	2 hours a week, Oct. 1, 1948 to Jan. 31, 1949	5.00[5] 25.00[4]
	Individual Psychotherapy	2 hours a week, Oct. 1, 1948 to Jan. 31, 1949	5.00[5] 25.00[4]
	Psychosomatic Medicine	1 hour a week, Oct. 1, 1948 to Jan. 31, 1949	5.00[5] 12.50[4]
St. Elizabeth's Hospital, Nichols Ave., S. E., Washington 20, D. C.	Postgraduate Courses in Psychiatry and Neurology	4 months, part time, beginning Sept. 15, 1948	None
Chicago Medical Society, 30 N. Michigan Ave., Chicago 2 At: Thorne Hall, Northwestern University Medical School Campus, Chicago	Hematology and Neurology	1 week, Sept. 13-18, 1948	50.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Clinical Neurology	10 weeks, part time, October 1948	80.00
Institute for Psychoanalysis, 664 N. Michigan Ave., Chicago, Illinois Neuropsychiatric Institute, 912 S. Wood St., Chicago 12 At: Illinois Neuropsychiatric Institute	Psychosomatic Demonstrations	9 months, part time, Oct. 1948-June 1949	None
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16, Institute for Psychoanalysis, 664 N. Michigan Ave., Chicago At: Michael Reese Hospital	Psychopathological Demonstrations	9 months, part time, Oct. 1948–June 1949	None
State University of Iowa School of Medicine, University Campus, Iowa City	Psychiatric	1 year, full time, July 1, 1948–June 30, 1949	300.00
Topeka Institute for Psychoanalysis, 3617 W. 6th Ave., Topeka, Kan. At: The Menninger Clinic	Basic Concepts of Psychoanalysis	24 hours, weekly	Arranged
	Continuous Case Seminar (Group Control)	92 hours, weekly	Arranged
	Interpretation of Dreams–Part I and II	18 hours, weekly	Arranged
	Psychoanalytic Contributions to the Theory and Treatment of Psychoses	15 hours, weekly	Arranged
	Psychoanalytic Literature	46 hours, bi-weekly	Arranged
	Psychoanalytic Technique–Part II	18 hours, weekly	Arranged
	Scientific Methodology of Psychoanalysis	6 hours, weekly	Arranged
University of Louisville School of Medicine, 101 W. Chestnut St., Louisville 2, Ky. and Kentucky State Medical Association, 620 S. 3rd St., Louisville 2 At: Louisville General Hospital	Neurology	Wednesdays, part time, throughout the year	Not given

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	NEUROLOGY AND PSYCHIATRY—Continued		
Commonwealth of Massachusetts, Department of Mental Health, Waltham At: Boston Psychopathic Hospital	Postgraduate Seminar in Neurology and Psychiatry-Social and Special Psychiatry	Once a week, part time, Oct. 20-Dec. 15, 1948	None
At: Metropolitan State Hospital, Waltham	Postgraduate Seminar in Neurology and Psychiatry-Review Course in Basic Neurology and Psychiatry	Once a week, part time, Oct. 15-Dec. 17, 1948	None
At: Walter E. Fernald State School, Waverley	Postgraduate Seminar in Neurology and Psychiatry-Pediatric Neuropsychiatry	Every other week, part time, Oct. 18-Dec. 13, 1948	None
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich.	Problems in Neurology	12 weeks, part time, Sept. 20-Dec. 11, 1948	35.00
At: Childrens Center	Child Guidance Clinic	12 weeks, Sept. 20-Dec. 11, 1948	25.00
	Child Guidance Clinic	12 weeks, Dec. 13, 1948-March 19, 1949	25.00
At: City of Detroit Receiving Hospital	Neurologic Conference	12 weeks, Sept. 20-Dec. 11, 1948	15.00
	Neurologic Conference	12 weeks, Dec. 13, 1948-March 19, 1949	15.00
	Psychosomatic Conference	12 weeks, Sept. 20-Dec. 11, 1948	15.00
	Psychosomatic Conference	12 weeks, Dec. 13, 1948-March 19, 1949	15.00
At: Wayne County General Hospital, Eloise	Clinical Psychiatric Seminar	12 weeks, Sept. 20-Dec. 11, 1948	15.00
	Clinical Psychiatric Seminar	12 weeks, Dec. 13, 1948-March 19, 1948	15.00
	Neurologic Conference	12 weeks, Sept. 20-Dec. 11, 1948	15.00
	Neurologic Conference	12 weeks, Dec. 13, 1948-March 19, 1949	15.00
	Psychosomatic Conference	12 weeks, Sept. 20-Dec. 11, 1948	15.00
	Psychosomatic Conference	12 weeks, Dec. 13, 1948 March 19, 1949	15.00
University of Minnesota Medical School, Department of Postgraduate Education, Minneapolis 14 At: Center for Continuation Study	Psychotherapy for General Physicians	2 weeks, full time, Sept. 20-Oct. 2, 1948	To be announced
New Jersey Neuropsychiatric Association, 82 Clinton Ave., Newark 5 and Rutgers University, New Brunswick	Neuropsychiatry for Specialists	15 weeks, part time Sept. 9-Dec. 23, 1948	100.00
Joint Committee on Post Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16 At: Jewish Hospital	Child Psychiatry	10 weeks, part time beginning Oct. 1948	20.00
At: Jewish Sanitarium and Hospital for Chronic Diseases	Basis of Neural Function	8 weeks, part time, beginning Oct. 1948	20.00
	Clinical Neurology	8 weeks, part time, beginning Oct. 1948	20.00
American Institute for Psychoanalysis, 266 West End Ave., New York 23	Continuous Case Seminar[41]	10 weekly sessions, beginning Sept. 13, 1948	20.00
	Dream Seminar[41]	15 weekly sessions, beginning Sept. 16, 1948	30.00
	Problems in Patient Doctor Relationship[41]	10 weekly sessions, beginning Nov. 22, 1948	20.00
	Psychiatry and Psychoanalysis	15 weekly sessions, beginning Sept. 16, 1948	30.00
	Readings in Psychoanalysis Part II	15 sessions every other week, beginning Sept. 17, 1948	30.00
At: New School for Social Research	Introduction to the Rorschach Method of Personality Diagnosis	15 weekly sessions, beginning Sept. 15, 1948	17.50
	The Search for Inner Unity	15 weekly sessions, beginning Sept. 14, 1948	15.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Columbia-Neurological Institute	Neurology PM 2 (Clinical Electroencephalography and Electromyography)[1]	Any 3 months between Oct. 1, 1948 and Mar. 31, 1949 full time	150.00
At: Columbia-Presbyterian Medical Center	Neurology PM 1 (Advanced Neurology)[1]	3 months, full time, July 5-Oct. 2, 1948	150.00
	Neurology PM 1 (Advanced Neurology)[1]	3 months, full time, Oct. 5-Dec. 31, 1948	150.00
	Psychiatry PM 1 (Symposium on Neurology and Psychiatry)[1]	2 months, full time, Oct. 4-Dec. 10, 1948	250.00
At: Montefiore Hospital	Neurology PM 60 (Neuropsychiatry)	1 month, part time, Nov. 8-Dec. 4, 1948	75.00

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	NEUROLOGY AND PSYCHIATRY—Continued		
At: Mount Sinai Hospital	Neurology PM 31 (Practical *Neuroanatomy and Neuropathology*)	7 months, part time, Oct. 4, 1948-May 23, 1949	140.00
	Neurology PM 32 (Advanced Practical Neuroanatomy and Neuropathology)	7 months, part time, Oct. 7, 1948-May 26, 1949	100.00
	Neurology PM 33 (Clinical Electroencephalography)[1]	3 months, part time, Oct. 7, 1948-Jan. 20, 1949	60.00
	Psychiatry PM 30 (Psychiatry in *General Medicine*)	4½ months, part time, Sept. 21, 1948-Feb. 1, 1949	100.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St. New York 29	*Comprehensive Course in Psychoanalysis*	*3 years, part time, session* begins in Oct. 1948	*500.00*[42]
New York Post-Graduate Medical School, 303 E. 20th St., *New York* 3	#713-Neurological and Psychiatric Diagnosis and Treatment in General Practice	2 weeks, full time, Dec. 6-18, 1948	100.00
New York University College of Medicine, 477 First Ave., New York 16	Psychiatry and Neurology[43]	8 weeks, full time, Sept. 27-Nov. 19, 1948	250.00
At: N. Y. University College of Medicine and *Bellevue Hospital*	Psychology and Psychodynamics	3 months, part time, arranged	200.00
Philadelphia Psychoanalytic Institute, 111 N. 49th St., Philadelphia 39	Clinical Conferences on Problem Children	5 sessions, *part time*, Sept. 1948-June 1949	5.00
	Introduction to Child Psychiatry[45]	28 sessions, part time, *Sept. 1948-June 1949*	30.00
	Orientation Course on Normal *Behavior*	10 sessions, part time, Sept. 1948-June 1949	10.00
	Professional School Courses (*On Theory, Therapeutic Applications* and Practice of Psychoanalysis)[44]	Varies, Sept. 1948-June 1949	424.50
	Psychopathology of Childhood	11 sessions, part time, Sept. 1948-June 1949	11.00
	The Emotional Development of the Child	*9 sessions, part time,* Sept. 1948-June 1949	9.00
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4	Clinicobiologic Neurology and *Psychiatry*[46]	10 weeks, full time, *October-December*, 1948	300.00
	Neurology-Psychiatry	8 months, October 1948-June 1949	800.00
University of Texas Medical Branch, Post-graduate	*Psychiatry for the General* Practitioner	*5 days, Nov. 1-6, 1948*	25.00
	NUCLEAR PHYSICS		
University Extension, University of California Medical School, Los Angeles 24, in cooperation with *University Medical Extension*, University of California, San Francisco 22 At: University Extension, Los Angeles	The Application *of* Nuclear Physics to the Biological and Medical Sciences[49]	*3 weeks, full time, Aug. 2-20, 1948*	350.00[47] *100.00*[48]
Columbia University College of Physicians and Surgeons, 630 W. 168th St. New York 32 At: Mount Sinai Hospital	Introduction to Nuclear *Physics for Physicians* (*Radiology PM 30*)[1]	3 months, Oct. 1, 1948-Jan. 28, 1949	60.00
	NUTRITION		
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Nutrition	1 month, arranged	150.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#309-Diseases of the Thyroid and Other Endocrine Glands and Disorders of Nutrition	Fridays, part time, Jan. 7-Feb. 25, 1949	45.00
	OBSTETRICS AND GYNECOLOGY		
Graduate Division of the School of Medicine, University of Southern California, Los Angeles 7 At: Los Angeles County Hospital	Course No. 753 - Obstetrics and Gynecology	2 weeks, full time, Oct. 1948	100.00
Chicago Maternity Center, 1336 S. Newberry, Chicago 8	Postgraduate Training in Obstetrics and Gynecology	4 months, staggered	None
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Obstetrics	4 weeks, part time, 1st Wednesday each month	80.00
	Two Weeks Obstetrics	2 weeks, full time, Sept. 27, 1948	150.00
	Office Gynecology	4 weeks, part time, Sept. 1, 1948	80.00
	Office Gynecology	4 weeks, part time, *October* 27, 1948	80.00
	Office Gynecology	4 weeks, part time, *Nov. 24, 1948*	80.00
	Operative Gynecology	4 weeks, part time, Sept. 2, 1948	80.00
	Operative Gynecology	4 weeks, part time,	80.00

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	OBSTETRICS AND GYNECOLOGY—Continued		
		October 28, 1948	
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12.—Continued	Operative Gynecology	4 weeks, part time, December 2, 1948	80.00
	Operative and Office Gynecology	2 weeks, full time, Sept. 13, 1948	150.00
	Operative and Office Gynecology	2 weeks, full time, October 11, 1948	150.00
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16	Gynecology and Surgery for the General Practitioner	25 weeks, part time, Oct. 1, 1948-Mar. 3, 1949	150.00
Indiana University School of Medicine, 1040 W. Michigan St., Indianapolis 7 At: Indiana University Medical Center	Refresher Course in Obstetrics and Gynecology	5 days, full time, Nov. 8-12 1948	10.00[32]
State University of Iowa College of Medicine, University Campus, Iowa City	Obstetrics and Gynecology	5 days, full time, early November 1948	25.00
University of Louisville School of Medicine, 101 W. Chestnut St., Louisville 2, Ky. and Kentucky State Medical Association, 620 S. 3rd St., Louisville 2 At: Louisville General Hospital	Intensive Post-Graduate Refresher Training in Obstetrics and Gynecology	3 days, full time, June 7-9, 1948	25.00[38]
University of Maryland School of Medicine, Lombard and Greene Sts., Baltimore 1	Gynecology and Obstetrics "A"	12 weeks, full time, arranged	150.00
	Gynecology, Oncology and Female Urology	10 weeks, full time, arranged	125.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15	Clinical Obstetrics	1 month, full time, October 1948	150.00
At: Boston Lying-In Hospital	Clinical Obstetrics	1 month, full time, November, 1948	150.00
At: Free Hospital for Women, Brookline	Pathology of Obstetrics and Gynecology	Every Thursday, Jan. 6-May 26, 1949	150.00
	Gynecology	1 month, full time, July 1948	150.00
	Gynecology	1 month, full time, August 1948	150.00
	Gynecology	1 month, full time, September 1948	150.00
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn 1313 Bedford Ave., Brooklyn 16 At: Cumberland Hospital	Complications of Pregnancy	4 weeks, part time, beginning Oct. 1948	20.00
Columbia University College of *Physicians and Surgeons*, 630 W. 168th St., New York 32 At: Margaret Hague Maternity Hospital, Jersey City, N.J.	*Obstetrics PM 80 - Internship Training*	3 *months*, full time, beginning 1st of each month except November and Dec.	350.00
	Obstetrics PM 81 - Observation Course	1 month, full time, beginning 1st of each month	100.00
At: Mount Sinai Hospital	Gynecology PM 30 - Recent Advances in Gynecology	5 days, full time, Dec. 13-18, 1948	65.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Division of Graduate Studies, Basic Medical Sciences-Surgery, Medicine, Obstetrics and Gynecology, Pediatrics, Radiology, Urology, Otolaryngology, Pathology, Anesthesiology	9 *months*, October 1948	600.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Obstetrics and Gynecology, Including Manikin Obstetrics and Cadaver Gynecology	2 *months*, full time, October 1, 1948	250.00
New York Post-Graduate Medical School 303 E. 20th St., New York 3	#200-Seminar in Gynecology	2 months, full time, beginning Oct. 4, 1948	300.00
	#200-Seminar in Gynecology	2 *months, full time*, beginning Jan. 3, 1949	300.00
	#201-Diagnosis and Office Treatment (Gynecology)	10 sessions, part time, Nov. 29-Dec. 20, 1948	50.00
	#202-Diagnosis and Office Treatment (Gynecology)	10 sessions, part time Nov. 30-Dec. 21, 1948	50.00
	#203-Diagnosis and Office Treatment (Gynecology)	15 sessions, part time, beginning Sept. 27, 1948	75.00
	#203-Diagnosis and Office Treatment (Gynecology)	15 sessions, part time, beginning Nov. 8, 1948	75.00
	#203-Diagnosis and Office Treatment (Gynecology)	15 sessions, part time, beginning Jan. 3, 1949	75.00
	#223-Vaginal Cytology[1]	8 weeks, part time, beginning Oct. 5, 1948	100.00
	#223-Vaginal Cytology[1]	8 weeks, part time, beginning Jan. 4, 1949	100.00
New York University College of Medicine, 477 First Ave., New York 16 At: Beth Israel Hospital	Gynecology	16 weeks, part time, Aug. 30-Dec. 17, 1948	250.00

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OBSTETRICS AND GYNECOLOGY—Continued			
Oklahoma State Medical Association, 210 Plaza Court Bldg., Oklahoma City 1 and Oklahoma State Health Department At: County Seats and Larger Towns over State	Gynecology	10 weeks, 1 lecture a week, continuous until Jan. 14, 1949	15.00
University of Oklahoma School of Medicine and University Hospitals, 800 Northeast 13th St., Oklahoma City 4 At: Tulsa, Oklahoma	Postgraduate Course in Obstetrics	3 days, September 1948	25.00
At: State Medical School of Oklahoma, Oklahoma City	Postgraduate Course in Pediatrics and Postgraduate Course in Obstetrics	5 days, quartely	None
University of Oregon Medical School, 3181 S. W Marquam Hill Road, Portland 1	Gynecology	5 days, full time, Nov. 15-19, 1948	50.00
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4	Obstetrics and Gynecology	8 months, Oct. 1948-June 1949	800.00
Meharry Medical College, 18th Ave. North at Meharry Blvd., Nashville	Obstetrics and Gynecology	5 days, July 12-16, 1948	25.00[38] 25.00
Washington State Medical Association, 218 Cobb Bldg., Seattle At: King County Hospital	Post-Graduate Course in Obstetrics and Gynecology	1 week, Aug. 2-7, 1948	25.00
University of Wisconsin Medical School, 418 N. Randall Ave., Madison 6	Observation Course in Obstetrics and Gynecology for Specialists[1]	Arranged	100.00[10]
OPHTHALMOLOGY			
Graduate Division of the School of Medicine, University of Southern California, Los Angeles 7 At: Los Angeles County Hospital	Course No. 752 - Basic Course in Ophthalmology	4 months, full time, October 1948	600.00
University Medical Extension, University of California, San Francisco 22 At: University of California Medical Center	Ophthalmology	5 days, full time, Sept 6-10, 1948	To be announced
Graduate School of Medicine, University of Florida, 2033 Riverside Ave., Jacksonville At: Miami Beach, Florida	Midwinter Seminar in Otolaryngology and Ophthalmology	6 days, full time, Jan. 10-15, 1949	Not given
The Children's Memorial Hospital, 707 Fullerton Ave., Chicago 14	Neuro-Muscular Anomalies of the Eyes	1 week, full time, Fall of 1948	50.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Advanced Course in Refraction Methods[1]	4 weeks, full time, October 25, 1948	275.00
	Ocular Fundus	1 week, full time, Nov. 1948	75.00
	Two Weeks Course in Ophthalmology[1]	2 weeks, full time, Sept. 20, 1948	200.00
Northwestern University Medical School, 303 E. Chicago Ave., Chicago 11	Basic Ophthalmology begginning October 1948	8 months, full time,	800.00
University of Illinois College of Medicine, 1853 W. Polk St., Chicago At: Illinois Eye and Ear Infirmary	Post-Graduate Course in Ophthalmology	8 months, full time Oct. 4, 1948-May 27, 1949	600.00[50]
Tulane University of Louisiana Division of Graduate Medicine, 1430 Tulane Ave., New Orleans 13	Ophthalmology	10 months, July 1, 1948-April 30, 1949	500.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15	Basic Sciences in Ophthalmology	3 months, full time, Sept. 27-Dec. 31, 1948	400.00
At: Harvard Medical School and Massachusetts Eye and Ear Infirmary	Clinical Ophthalmology	1 month, full time, January 3-29, 1949	150.00
Tufts College Medical School, Postgraduate Division 30 Bennet St., Boston 11 At: Boston City Hospital	Neuro-Ophthalmology	2 weeks, part time, Nov. 8-20, 1948	75.00[4] 5.00[5]
	Ophthalmology	1 month, part time, October 4-29, 1948	75.00[4] 5.00[5]
	Ophthalmology	1 month, part time, January 10-Feb. 4, 1949	75.00[4] 5.00[5]
At: Boston Dispensary	Ophthalmoscopy	1 month, part time, November 1-26, 1948	50.00[4] 5.00[5]
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich.	Basic Ophthalmology	5 months, Sept. 20, 1948-February 20, 1949	300.00
American Academy of Ophthalmology and Otolaryngology, 100 First Ave. Bldg., Rochester, Minnesota	Ophthalmology and Otolaryngology (Home Study Courses)	September 1948 to May 1949	10.00
At: The Palmer House, Chicago	Annual Meeting of the Academy (Lectures on Various Subjects in Ophthalmology and Otolaryngology)	October 10-15, 1948	1.50[51]

References will be found on page 749

Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	OPHTHALMOLOGY—Continued		
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Ophthalmology PM 30 - Slit Lamp Microscopy of the Living Eye[1]	7 weeks, part time, Oct. 6-Nov. 24, 1948	30.00
	Ophthalmology PM 31 - Ophthalmic Surgery[1]	2 months, part time, Oct. 6-Dec. 8, 1948	90.00
	Ophthalmology PM 32 - Refraction and Extraocular Muscles[1]	2½ months, part time, Oct. 8-Dec. 24, 1948	80.00
	Ophthalmology PM 34 - Histopathology of the Eye[1]	2½ months, part time, Oct. 11-Dec. 30, 1948	55.00
	Ophthalmology PM 35 - Bacteriology of the Eye and External Diseases[1]	2½ months, part time, Oct. 11-Dec. 27, 1948	45.00
	Ophthalmology PM 36 - Embryology of the Eye[1]	1½ month, part time, Oct. 6-Nov. 24, 1948	40.00
	Ophthalmology PM 37 - Physiological Optics[1]	2 months, part time, Oct. 11-Dec. 13, 1948	45.pp
	Ophthalmology PM 38 - Ophthalmoscopy[1] (Advanced Course)	2½ months, part time Oct. 7-Dec. 23, 1948	40.00
	Ophthalmology PM 39-A - Ophthalmoscopy in General Practice	2½ months, part time Sept. 20-Dec. 6, 1948	25.00
	Ophthalmology PM 39-B - Ophthalmoscopy in General Practice	2½ months, part time Sept. 23-Dec. 16, 1948	25.00
	Ophthalmology PM 40 - Techniques of Systematic Examination of the Eye and Functional Testing[1]	2½ months, part time Sept. 22-Dec 8, 1948	25.00
	Ophthalmology PM 42 - Medical Ophthalmology	2 months, part time Oct. 18-Dec. 14, 1943	25.00
New York Polyclinic Medical School and Hospital, 345 W. 50 St., New York 19	Clinical Otolaryngology and Ophthalmology	6 weeks, full time, October 1, 1948	100.00
	Clinical Otolaryngology and Ophthalmology	3 months, full time, October 1, 1948	150.00
	Clinical Otolaryngology and Ophthalmology	6 weeks, full time, January 2, 1949	100.00
	Clinical Otolaryngology and Ophthalmology	3 months, full time, January 2, 1949	150.00
	Eye, Ear, Nose and Throat, Including Cadover Courses and Refraction	3 months, full time, October 1948	600.00
	Ophthalmology	6 weeks, part time October 1, 1948	50.00
	Ophthalmology	3 months, part time October 1, 1948	75.00
	Ophthalmology	6 weeks, part time January 2, 1949	50.00
	Ophthalmology	3 months, part time January 2, 1949	75.00
	Ophthalmology, Including Operative Ophthalmology (Cadaver) and Refraction	3 months, part time October 1, 1948	275.00
	Ophthalmology, Including Operative Ophthalmology (Cacaver) and Refraction	3 months, part time January 2, 1949	275.00
	Ophthalmology and Otolaryngology, Including Cadaver Courses and Refraction	3 months, full time October 1, 1948	600.00
	Ophthalmology and Otolaryngology, Including Cadaver Courses and Refraction	3 months, full time January 2, 1949	600.00
	Otolaryngology and Ophthalmology	9 months, full time October 1, 1948	1000.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#1413 - Motor Anomalies of the Eye[1] (Part I)	6 days, full time, October 18-23, 1948	100.00
	#1414 - Motor Anomalies of the Eye[1] (Part II)	5 days, full time, October 25-29, 1948	75.00
	#1417 - Ophthalmic Neurology[1]	5 days, part time, November 1-5, 1948	50.00
	#1419 - Surgery of the Eye[1]	6 days, full time, November 8-13, 1948	100.00
	#1421 - Differential Diagnosis with the Slit Lamp[1]	5 days, part time, November 1-5, 1948	50.00
New York University College of Medicine, 477 First Ave., New York 16 At: New York Eye and Ear Infirmary	Operative Eye Surgery[1]	1 month, part time, October 1948	100.00
	Refraction[1]	2 months, part time, October 1948	100.00
University of Rochester School of Medicine and Dentistry, 260 Crittenden Blvd., Rochester 7, New York	Sixteenth Summer Graduate Course in Ophthalmology	4 days, full time, July 19-22, 1948	40.00
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4	Ophthalmology	8 months, October 1948-June 1949	800.00
Virginia Society of Ophthalmology and Otolaryngology, University Station, Charlottesville, Va. At: University of Virginia Hospital	Post-Graduate Course in Ophthalmology and Otolaryngology	4 days, Nov. 3 and Dec. 1, 1948[52] - Dec. 2-3, 1948[53]	25.00[54] 15.00[55]

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ORTHOPEDIC SURGERY		
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Hospital for Joint Diseases	Orthopedic Surgery PM 80 - Survey of the Essentials of Orthopedics	2½ months, 1 day a week, Oct. 7-Dec. 23, 1948	100.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#500 - Seminar in Orthopedic Surgery[1]	10 days, full time, January 3-14, 1949	125.00
	#520 - Orthopedics in General Practice	6 days, full time, November 15-20, 1948	60.00
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4	Orthopedics	8 months, October 1948-June 1949	800.00
	Orthopedics	12 months, October 1948-September 1949	1000.00
	OTOLARYNGOLOGY		
Graduate School of Medicine, University of Florida, 2033 Riverside Ave., Jacksonville At: Miami Beach, Florida	Midwinter Seminar in Otolaryngology and Ophthalmology	6 days, full time, January 10-15, 1949	Not giver
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Two Weeks Course in Otolaryngology[1]	2 weeks, full time, October 1948	200.00
Northwestern University Medical School, 303 E. Chicago Ave., Chicago 11	Audiology and End-Aural Otologic Surgery	1 month, full time, October 1948	500.00
	Basic Otolaryngology	9 months, full time, October 1948	800.00
	Fenestration Surgery[56]	2 months, full time, November 1948	500.00
Tulane University of Louisiana Division of Graduate Medicine, 1430 Tulane Ave., New Orleans 13	Otolaryngology	10 months, July 1, 1948-April 30, 1949	500.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Harvard Medical School and Massachusetts Eye and Ear Infirmary	Otolaryngology - Basic Sciences	8 months, full time, Oct. 1, 1948-May 31, 1949	900.00
American Academy of Ophthalmology and Otolaryngology, 100 First Ave. Bldg., Rochester, Minnesota	Ophthalmology and Otolaryngology (Home Study Courses)	September 1948 to May 1949	10.00
At: The Palmer House, Chicago	Annual Meeting of the Academy (Lectures on Various Subjects in Ophthalmology and Otolaryngology)	October 10-15, 1948	1.50[51]
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Columbia-Presbyterian Medical Center At: Mount Sinai Hospital	Otolaryngology PM 1 - Bronchoscopy[1]	3 weeks, part time, Oct. 11-29, 1948	250.00
	Otolaryngology PM 30 - Histopathology of the Ear[1]	6 weeks, part time, Oct. 19-Nov. 26, 1948	50.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Division of Graduate Studies, Basic Medical Sciences-Surgery, Medicine, Obstetrics and Gynecology, Pediatrics, Radiology, Urology, Otolaryngology, Pathology, Anesthesiology	9 months, October 1948	600.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Clinical Otolaryngology	6 weeks, part time, October 1, 1948	75.00
	Clinical Otolaryngology	3 months, part time, October 1, 1948	100.00
	Clinical Otolaryngology	6 weeks, part time, January 2, 1949	75.00
	Clinical Otolaryngology	3 months, part time, January 2, 1949	100.00
	Clinical Otolaryngology and Ophthalmology	6 weeks, full time, October 1, 1948	100.00
	Clinical Otolaryngology and Ophthalmology	3 months, full time, October 1, 1948	150.00
	Clinical Otolaryngology and Ophthalmology	6 weeks, full time, January 2, 1949	100.00
	Clinical Otolaryngology and Ophthalmology	3 months, full time, January 2, 1949	150.00
	Ophthalmology and Otolaryngology Including Cadaver Courses and Refraction	3 months, full time, October 1, 1948	600.00
	Ophthalmology and Otolaryngology Including Cadaver Courses and Refraction	3 months, full time, January 2, 1949	600.00
	Otolaryngology and Ophthalmology	9 months, full time, October 1, 1948	1000.00

Postgraduate Courses for Practicing Physicians—Jyly 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	OTOLARYNGOLOGY—Continued		
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#600 - Diagnostic Procedures in Otolaryngology	Sections A, B and C, (12 sessions each, part time) by arrangement	40.00[58]
	#620 - Symposium on Otolaryngology	10 days, full time, November 8-20, 1948	150.00
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4	Otolaryngology	8 months, October 1948-June 1949	800.00
Virginia Society of Ophthalmology and Otolaryngology, University Station, Charlottesville At: University of Virginia Hospital	Post-Graduate Course in Ophthalmology and Otolaryngology	4 days, Nov. 3 and Dec. 1, 1948[52] Dec. 2-3, 1948[53]	25.00[54] 15.00[55]
	OTORHINOLARYNGOLOGY		
Georgetown University School of Medicine, 3900 Reservoir Road, N.W., Washington, D.C. At: Georgetown Medical Center	Intensive Graduate Course-Otorhinolaryngology	2 weeks, dates indefinite	150.00
State University of Iowa College of Medicine, University Campus, Iowa City	Otolaryngology-Rhinology-Otology	5 days, full time, Nov. 29, 30-Dec. 1, 2 and 3, 1948	50.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Eye, Ear, Nose and Throat, including Cadaver Courses and Refraction	3 months, full time, October 1948	600.00
	PATHOLOGY		
University Extension, University of California Medical School, Los Angeles 24, in cooperation with University Medical Extension, University of California, San Francisco 22 At: University Extension, Los Angeles	Surgical Pathology	12 weeks, part time, Sept. 22-Dec. 8, 1948	50.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Gross Pathology	1 month, full time, every month	150.00
	Gross Pathology	12 months, full time, by appointment	500.00
	Gross and Microscopic Pathology	Hourly basis, by appointment	To be arranged
	Pathology and Laboratory Medicine	10 weeks, part time, October 1948	100.00
	One Month Course - Surgical Pathology	4 weeks, full time, every month	250.00
	Surgical Pathology One Day Each Week	10 weeks, part time, October 1948	100.00
	Two Weeks Course in Surgical Pathology	2 weeks, full time, every two weeks	150.00
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16	Pathologic Diagnosis	10 weeks, part time, Oct. 13-Dec. 15, 1948	50.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich.	Neuropathology	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	50.00
	Pathology of Bone and Joint Diseases	12 weeks, Dec. 13, 1948-March 19, 1949	50.00
	Pathology of Heart and Blood Vessels	12 weeks, Sept. 20-Dec. 11, 1948	50.00
	Pathology of Parasitic Diseases	12 weeks, Dec. 13, 1948-March 19, 1949	50.00
	Surgical Pathology	12 weeks, part time, Sept. 20-Dec. 11, 1948	50.00
	Urologic Pathology	12 weeks, Sept. 20-Dec. 11, 1948	50.00
At: City of Detroit Receiving Hospital	Medical Pathologic Conference	12 weeks, part time every quarter	15.00
	Pathology Review	12 weeks, part time, Sept. 20-Dec. 11, 1948	15.00
	Pathology Review	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	15.00
At: Wayne County General Hospital, Eloise	Medical Pathologic Conference	12 weeks, part time, every quarter	15.00
	Pathology Review	12 weeks, part time, Sept. 20-Dec. 11, 1948	15.00
	Pathology Review	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	15.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Pathology PM 30 - General and Special Pathology	3½ months, part time, Oct. 2, 1948-Jan. 22, 1949	60.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Clinical Pathology	26 hours, arranged	100.00
	Division of Graduate Studies, Basic Medical Sciences-Surgery, Medicine, Obstetrics and Gynecology, Pediatrics, Radiology, Urology, Otolaryngology, Pathology, Anesthesiology	9 months, October 1948	600.00
	Pathology	16 weeks, half time, arranged	200.00

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	PATHOLOGY—Continued		
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Practical Laboratory Instruction in Pathology and Bacteriology	Arranged	Arranged
New York University College of Medicine, 477 First Ave., New York 16 At: Lenox Hill Hospital	Histopathology for Gynecologists	6 weeks, part time Oct. 12-Nov. 19, 1948	50.00
	Pathology for Surgeons	6 weeks, part time, Oct. 11-Nov. 18, 1948	50.00
University of Texas Medical Branch, Post-graduate Division, 912 Avenue B., Galveston	Tumors of Skin and Head and Neck	4 days, Nov. 15-20, 1948	20.00
Baylor University College of Medicine, 509 Lincoln Ave., Houston 1	Pathology Course	6 months, part time, beginning July 1, 1948	120.00[47] 40.00[57]
	PEDIATRICS		
Arkansas State Board of Health, Little Rock, University of Arkansas School of Medicine, 1309 McAlmont St., Little Rock and Arkansas Medical Society, Fort Smith At: Little Rock	Pediatric Seminar	3 days, 16 hours Nov. 4,5,6, 1948	None
University Extension, University of California Medical School, Los Angeles 24, in cooperation with University Medical Extension, University of California, San Francisco 22 At: University Extension, Los Angeles	Pediatrics	6 weeks, part time, Sept. 20-Oct. 25, 1948	25.00
Children's Memorial Hospital, 707 Fullerton Ave., Chicago 14	Postgraduate Course in Pediatrics	1 month, full time, October 4, 1948	100.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Clinical Course in Pediatrics	2 weeks, full time, every two weeks	60.00
	Twelve Months Clinical Course in Pediatrics	12 months, full time, July 1, 1948	750.00
Indiana University School of Medicine, 1040 W. Michigan St., Indianapolis 7 At: Indiana University Medical Center	Refresher Course in Pediatrics	5 days, full time, Nov. 15-19, 1948	10.00[32]
University of Louisville School of Medicine, 101 W. Chestnut St., Louisville 2, and Kentucky State Medical Association, 620 S. 3rd St., Louisville 2 At: Louisville General Hospital	Intensive Postgraduate Refresher Training in Pediatrics	3 days, full time, June 10-12, 1948	25.00[38]
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Children's Hospital	Pediatrics	4 months, full time, Sept. 7-Dec. 31, 1948	500.00
	Pediatrics	4 months, full time, Jan. 3-April 28, 1949	500.00
At: Massachusetts General Hospital	Pediatrics	Monthly, full time, Oct. 1948 through April 1949	150.00[10]
	Pediatrics	8 months, full time, Oct. 1, 1948-May 31, 1949	800.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11 At: Boston Floating Hospital	Clinical Pediatrics	4 weeks, part time, Nov. 29-Dec. 24, 1948	60.00[4] 5.00[5]
	Pediatrics	2 weeks, full time, Nov. 29-Dec. 11, 1948	75.00[4] 5.00[5]
University of Michigan Medical School, Department of Postgraduate Medicine, 1313 E. Ann St., Ann Arbor At: University Hospital	Pediatric Clinical Conferences	Wednesday afternoons throughout 1948 except during July and August	None
Washington University School of Medicine, Kingshighway and Euclid Ave., St. Louis 10, Mo.	A two Month's Refresher Course in Pediatrics	2 months, September through November 1948	200.00
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16 At: Beth El Hospital	Clinical Pediatrics	5 weeks, part time, beginning October 1948	30.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Pediatrics PM 30 - Clinical Pediatrics	9 weeks, part time, Oct. 5-Dec. 14, 1948	80.00
	Pediatrics PM 31 - Allergy in Children	1½ months, part time, Oct. 15-Dec. 3, 1948	30.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Clinical Pediatrics	1 month, all year, full time	150.00
	Clinical Pediatrics	3 months, all year, full time	250.00
	Clinical Pediatrics	6 months, all year, full time	450.00
	Clinical Pediatrics	9 months, all year, full time	650.00

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	PEDIATRICS—Continued		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12.—Continued	Division of Graduate Studies-Basic Medical Sciences-Surgery, Medicine, Obstetrics and Gynecology, Pediatrics, Radiology, Urology, Otolaryngology, Pathology, Anesthesiology	9 months, October 1948	600.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#410-Clinical Pediatrics	4 weeks, full time, Oct. 11-Nov. 6, 1948	150.00
	#410-Clinical Pediatrics	4 weeks, full time, January 3-29, 1949	150.00
	#413-Practical Clinical Pediatrics	4 weeks, full time, Nov. 8-Dec. 4, 1948	125.00
	#415-Review of Clinical Pediatrics	6 days, full time, November 15-20, 1948	60.00
New York University College of Medicine, 477 First Ave., New York 16 At: Beth Israel Hospital	Pediatrics	12 weeks, part time, Sept. 28-Dec. 17, 1948	75.00
At: Lenox Hill Hospital	Pediatrics	8 weeks, part time, Sept. 28-Nov. 19, 1948	50.00
Council of Rochester Regional Hospitals, 800 Reynolds Arcade Bldg., Rochester 4, New York, Strong Memorial Hospital and University of Rochester Medical School. At: Strong Memorial Hospital	Pediatrics[17]	1-2 months, Fall, 1948	None
Southern Pediatric Seminar, Saluda, N. C.	Southern Pediatric Seminar (28th Annual Session)	2 weeks, July 5-17, 1948	25.00
University of Oklahoma School of Medicine, and University Hospitals, 800 N. E. Thirteenth St., Oklahoma City 4	Postgraduate Course in Pediatrics	3 days, Dec. 6-8, 1948	25.00
University of Oklahoma School of Medicine, and University Hospitals, 800 N. E. Thirteenth St., Oklahoma City 4 and State Department of Health, 3400 N. Eastern, Oklahoma City 5 At: State Medical School of Oklahoma	Postgraduate Course in Pediatrics and Postgraduate Course in Obstetrics	5 days, quarterly	None
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4	Pediatrics	8 months, October 1948-June 1949	800.00
University of Texas Medical Branch, Postgraduate Division, 912 Avenue B., Galveston	Pediatrics	1 week, Nov. 8-13, 1948	25.00
Washington State Medical Association, 218 Cobb Bldg., Seattle At: Children's Orthopedic Hospital	Post-Graduate Course in Pediatrics	1 week, Aug. 9-14, 1948	25.00
University of Wisconsin Medical School, 418 N. Randall Ave., Madison 6	Observation Course in Pediatrics for Specialists	Arranged	100.00[10]
	PHARMACOLOGY		
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich.	Survey of Pharmacology	12 weeks, part time, Sept. 20-Dec. 11, 1948	15.00
	PHYSICAL MEDICINE		
Graduate Division of the School of Medicine, University of Southern California, Los Angeles 7 At: Los Angeles County Hospital	Course No. 775 - Principles of Physical Medicine	12 weeks, full time, September 1948	250.00
	Course No. 779 - Advanced Clinical Practice in Physical Medicine	12 months, full time, September 1948	1000.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Physical Medicine	10 weeks, part time, October 1948	125.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Physical Medicine PM 30 - Physical Therapy in General Practice	4 months, part time, Oct. 5, 1948-Feb. 1, 1949	
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Physical Medicine	4 weeks, arranged	100.00
New York University College of Medicine, 477 First Ave., New York 16 At: Bellevue Hospital and Institute of Rehabilitation	Rehabilitation and Physical Medicine	12 weeks, full time, by arrangement	200.00
	Rehabilitation and Physical Medicine	24 weeks, full time, by arrangement	400.00
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4	Physical Medicine	8 months, October 1948-June 1949	800.00
	PHYSIOLOGICAL CHEMISTRY		
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich.	Physiological Chemistry Seminar	12 weeks, part time, Sept. 20-Dec. 11, 1948	15.00
	Physiological Chemistry Seminar	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	15.00

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	PHYSIOLOGY		
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich.	Survey of Physiology	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	15.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Physiology PM 30 - Physiology of the Digestive Tract	2 months, part time, Oct. 6-Dec. 10, 1948	40.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Physiology and Chemistry of the Gastrointestinal Tract, Digestion	1 month, arranged	150.00
	Physiology of Respiration	1 month, arranged	75.00
	Physiology of the Cardio-Vascular System and Blood	1 month, arranged	75.00
	Physiology of the Endocrine System	1 month, arranged	75.00
	Physiology of the Nervous System	2 weeks, arranged	50.00
	Physiology of the Special Senses	1 month, arranged	75.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#304-Normal and Pathological Physiology: Functional and Chemical Aspects	Wednesdays, part time, Jan. 5 - Feb. 23, 1949	30.00
	#342-Normal and Pathological Physiology: Functional and Chemical Aspects	10 days, full time, October 4-15, 1948	100.00
	POLIOMYELITIS		
Georgia Warm Springs Foundation, Warm Springs, Ga.	Care of Acute and Convalescent Poliomyelitis	1 week, October 4, 1948	None
	Care of Acute and Convalescent Poliomyelitis	1 week, January 3, 1949	None
D. T. Watson School of Physical Therapy, Leetsdale, Pa.	Recent Advances in Treatment of Poliomyelitis	4 days, arranged	None
	PROCTOLOGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Proctoscopy	3 weeks, part time, Aug. 20 - Oct. 1, 1948	50.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11 At: Boston Dispensary and Mt. Auburn Hospital, Cambridge	Proctology I[59]	6 days, full time, October 25-30, 1948	40.00[4] 5.00[5]
	Proctology II	1 month, full time, Nov. 1-27, 1948	250.00[4] 5.00[5]
At: Boston Dispensary and Associated Clinics	Proctology III[59]	1 month, part time, Sept. 27 - Oct. 23, 1948[60]	100.00[4] 5.00[5]
	Proctology III[59]	1 month, part time, Nov. 29 - Dec. 24, 1948[60]	100.00[4] 5.00[5]
	Proctology III[59]	1 month, part time, January 3-29, 1949[60]	100.00[4] 5.00[5]
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16 At: Jewish Hospital	Proctology	6 weeks, part time, beginning October 1948	40.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Proctology	6 weeks, part time, October 1, 1948	75.00
	Proctology	6 weeks, part time, January 2, 1949	75.00
	Proctology (Clinical)	6 weeks, part time, October 1948	75.00
	Proctology, Gastroenterology, Operative Proctology (Cadaver)	6 weeks, part time, October 1, 1948	200.00
	Proctology, Gastroenterology, Operative Proctology (Cadaver)	6 weeks, part time, January 2, 1949	200.00
New York University College of Medicine, 477 First Ave., New York 16	Proctology	8 weeks, part time, Oct. 4 - Nov. 26, 1948	125.00
	PUBLIC HEALTH		
United States Public Health Service, Hot Springs National Park, Arkansas and Arkansas State Board of Health At: USPHS Medical Center, Hot Springs National Park	Eleventh Postgraduate Course in the Clinical Management and Public Health Control of the Venereal Diseases	3 weeks, full time, Fall 1948	None
Tulane University of Louisiana Division of Graduate Medicine, 1430 Tulane Ave., New Orleans 13	Tropical Medicine and Public Health Leading to the Degree of Master of Public Health (Tropical Medicine)	9 months, Sept. 2, 1948 to May 30, 1949	500.00
Johns Hopkins University School of Hygiene and Public Health, 615 N. Wolfe St., Baltimore, Md.	Public Health (Note; Specialized training courses in Venereal Diseases, Mental Hygiene, Maternal and Child Health, Hospital Administration)	8 months, full time, Oct. 4, 1948 - May 28, 1949	600.00[40]

.References will be found on page 749

Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	PUBLIC HEALTH—Continued		
University of Michigan School of Public Health, 109 S. Observatory St., Ann Arbor	Public Health (Public Health Administration and Epidemiology, Venereal Diseases, Tuberculosis, Maternal and Child Health and Industrial Health)	4 months, Sept. 20, 1948-January 17, 1949	*Not given*
University of Minnesota School of Public Health, Minneapolis 14	Course for Health Officers	9 months, full time, Sept. 27, 1948 - June 1949	Not given
New York State Department of Health, 76 State St., Albany 7 and Albany Medical College, 47 New Scotland Ave., Albany 3	Extension Course for Health Officers Grade II[61]	1 year, monthly - entrance at any time	38.00
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16	Radiobiological Foundations of Medicine and Public Health	10 weeks, part time, beginning October 1948	30.00
University of North Carolina School of Public Health, Chapel Hill, N.C.	Public Health	9 months, Sept. 1948-June 1949	100.00[25]
Ohio State Department of Health, 306 Ohio Depts. Bldg., Columbus 15 At: Oberlin, Ohio	Field Training, Orientation and Public Health Administration	1 month, special arrangement	None
	RADIOLOGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Clinical Roentgenology	2 weeks, full time, 3rd Monday of each month	70.00
	Diagnostic Radiology	8 months, arranged	500.00
	#1 Diagnostic Roentgenology	2 weeks, full time, 1st Monday of each month	125.00
	One Month Course - Clinical Roentgenology	4 weeks, full time, 3rd Monday of each month	125.00
	Radiation Therapy	2 weeks, full time, every two weeks	110.00
	Radiation Therapy	4 weeks, full time, every month	200.00
	Radiation Therapy	2 months, full time, every month	300.00
	Twelve Months Course - Radiology	12 months, full time, arranged	750.00
	X-Ray Interpretation	10 weeks, part time, September 1948	80.00
University of Louisville, School of Medicine, 101 W. Chestnut St., Louisville 2, Ky. and Kentucky State Medical Association, 620 S. Third St., Louisville 2 At: Louisville General Hospital	Radiology	13 weeks, part time, September 1948	*Not given*
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15 At: Boston City Hospital	General Radiology	1 month, full time, October 1948 through March 1949	150.00
At: Children's Hospital	Pediatric Radiology[62]	1 month, full time, monthly	150.00
At: Massachusetts General Hospital	General Radiology[62]	1 month, full time, monthly	150.00
At: Peter Bent Brigham Hospital	General Radiology[62]	1 month, full time, monthly	150.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich. At: City of Detroit Receiving Hospital	Medical X-Ray Conference	12 weeks, Summer Quarter	15.00
	Medical X-Ray Conference	12 weeks, part time, Sept. 20-Dec. 11, 1948	15.00
	Medical X-Ray Conference	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	15.00
At: Wayne County General Hospital, Eloise	Medical X-Ray Conference	12 weeks, part time, Sept. 20-Dec. 11, 1948	15.00
	Medical X-Ray Conference	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	15.00
University of Minnesota Medical School, Department of Postgraduate Education, Minneapolis 14 At: Center for Continuation Study	X-Ray Cardiovascular Roentgenology[1]	6 days, Oct. 25-30, 1948	To be announced
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16 At: Beth El Hospital	Roentgen Diagnosis	8 weeks, 1 hour per week, beginning October 1948	20.00
At: Jewish Sanitarium and Hospital for Chronic Diseases	Clinical Radiology	8 weeks, 1 hour per week, beginning October 1948	20.00
Columbia University College of Physicians and Surgeons, 630 W. 168 St., New York 32 At: Columbia-Presbyterian Medical Center	Radiology PM 1 - Radiological Physics[1]	2 months, part time, Sept. 21-Nov. 18, 1948	25.00
At: Mount Sinai Hospital	Radiology PM 30 - Introduction to Nuclear Physics for Physicians[1]	3 months, October 1, 1948-January 28, 1949	60.00

References will be found on page 749

Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	RADIOLOGY—Continued		
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Diagnostic Roentgenology	6 weeks, half time, every 6 weeks except during July and August	150.00
	Division of Graduate Studies, Basic Medical Sciences-Surgery, Medicine, Obstetrics and Gynecology, Pediatrics, Radiology, Urology, otolaryngology, Pathology, Anesthesiology	9 months, October 1948	600.00
	Radium and Roentgen Therapy	6 weeks, half time, every 6 weeks except during July and August	150.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Radiology	3 months, full time, October 1, 1948	300.00
	Radiology	3 months, full time, January 2, 1949	300.00
	Radiology	12 months, full time, October 1, 1948	1000.00
New York University College of Medicine, 477 First Ave., New York 16	Diagnostic Radiology	12 weeks, part time, Sept. 27-Dec. 17, 1948	100.00
	Diagnostic Radiology for General Practitioners	32 weeks, part time, Oct. 8, 1948-May 13, 1949	100.00
At: Beth Israel Hospital	Roentgenology	8 weeks, part time, Sept. 28-Nov. 18, 1948	50.00
University of Oregon Medical School, 3181 S. W. Marquam Hill Road, Portland 1	Radiology	5 days, full time, November 1-5, 1948	50.00
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4	Radiology	8 months, October 1948-June 1949	800.00
	SURGERY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Clinical Surgery	10 weeks, part time, September 1948	150.00
	Fractures and Traumatic Surgery	2 weeks, full time, October 25, 1948	125.00
	Lecture Course in General Surgery	10 weeks, part time, September 16, 1948	Not given
	One Month Course - General Surgery	4 weeks, full time, August 2, 1948	300.00
	One Month Course - General Surgery	4 weeks, full time, September 13, 1948	300.00
	One Month Course - General Surgery	4 weeks, full time, October 11, 1948	300.00
	One Month Course - General Surgery	4 weeks, full time, November 8, 1948	300.00
	One Week Course in Surgery of Breast and Thyroid	1 week, full time, October 25, 1948	150.00
	One Week Course in Surgery of the Colon and Rectum	1 week, full time, September 20, 1948	100.00
	One Week Course in Surgery of the Colon and Rectum	1 week, full time, October 18, 1948	100.00
	One Week Course in Surgery of the Colon and Rectum	1 week, full time, November 15, 1948	100.00
	Personal Course in Gallbladder Surgery	4 days, full time, November 1, 1948	100.00
	Surgical Aspects of Pheripheral Vascular Diseases	5 weeks, part time, September 1948	60.00
	Surgical Diagnosis	10 weeks, part time, October 1948	100.00
	Surgical Technique with Practice	10 weeks, part time, September 1948	200.00
	Thoracic Surgery	1 week, full time, October 18, 1948	100.00
	Thoracic Surgery	10 weeks, part time, October 1948	100.00
	Two Week Course in Surgical Technique	2 weeks, full time, July 19, 1948	200.00
	Two Week Course in Surgical Technique	2 weeks, full time, August 16, 1948	200.00
	Two Week Course in Surgical Technique	2 weeks, full time, September 27, 1948	200.00
	Two Week Course in Surgical Technique	2 weeks, full time, October 25, 1948	200.00
	Two Week Course in Surgical Technique	2 weeks, full time, November 29, 1948	200.00
	Two Week Course in Surgical Anatomy and Clinical Surgery	2 weeks, full time, July 6, 1948	150.00
	Two Week Course in Surgical Anatomy and Clinical Surgery	2 weeks, full time, August 16, 1948	150.00
	Two Week Course in Surgical Anatomy and Clinical Surgery	2 weeks, full time, September 27, 1948	150.00

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	SURGERY--Continued		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12.—*Continued*	Two Week Course in Surgical Anatomy and Clinical Surgery	2 weeks, full time, October 25, 1948	150.00
	Two Week Course in Surgical Anatomy and Clinical Surgery	2 weeks, full time, November 22, 1948	150.00
	Vaginal Approach to Pelvic Surgery	1 week, full time, September 27, 1948	100.00
	Vaginal Approach to Pelvic Surgery	1 week, full time, October 25, 1948	100.00
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16	Gynecology and Surgery for the General Practitioner	25 weeks, part time, Oct. 1, 1948 - Mar. 3, 1949	150.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich.	Surgery Seminar	12 weeks, part time, Sept. 20-Dec. 11, 1948	15.00
	Surgery Seminar	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	15.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Surgery PM 30 - Surgery of the Gastrointestinal Tract[1]	4 weeks, full time, October 4-30, 1948	150.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Division of Graduate Studies, Basic Medical Sciences-Surgery, Medicine, Obstetrics and Gynecology, Pediatrics, Radiology, Urology, Otolaryngology, Pathology, Anesthesiology	9 months, October 1948	800.00
	Surgical Technique	50 hours, arranged	375.00
	Thoracic Surgery	3 weeks, full time, Fall 1948	325.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Clinical and Operative (Cadaver) Surgery	6 weeks, full time, October 1948	200.00
	Clinical Surgery	6 weeks, full time, October 1, 1948	100.00
	Clinical Surgery	6 weeks, full time, January 2, 1949	100.00
	Combined Surgical Course Including Cadaver Surgery and Gynecology	3 months, full time, October 1, 1948	350.00
	Combined Surgical Course Including Cadaver Surgery and Gynecology	3 months, full time, January 2, 1949	350.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	Recent Advances in Surgery	10 days, full time, Sept. 20-30, 1948	175.00
	#550 - Diagnosis and Treatment of Trauma	6 days, full time, December 6-11, 1948	60.00
	#558 - Surgery of the Hand[1]	6 days, full time, October 4-9, 1948	75.00
	#560 - Seminar in Traumatic Surgery[1]	2 weeks, full time, Sept. 13-25, 1948	125.00
	#901 - Review of General Surgery for Surgeons[1]	4 weeks, full time, Oct. 18-Nov. 13, 1948	300.00
University of Oregon Medical School, 3181 S.W. Marquam Hill Road, Portland 1	General Surgery	5 days, full time, October 18-22, 1948	50.00
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4	Surgery	8 months, October 1948-June 1949	800.00
University of Wisconsin Medical School, 418 N. Randall Ave., Madison 6	Observation Course in Surgery for Specialists[1]	Arranged	100.00[10]
	THERAPY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Radiation Therapy	2 weeks, full time, every two weeks	110.00
	Radiation Therapy	4 weeks, full time, every month	200.00
	Radiation Therapy	2 months, full time, every month	300.00
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16 At: Jewish Sanitarium and Hospital for Chronic Diseases	Clinical Therapeutics	7 weeks, part time, beginning October 1948	40.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Physical Therapy in General Practice (Physical Medicine PM-30)	4 months, part time, Oct. 5, 1948-Feb. 1, 1949	85.00
	Recent Advances in Therapy (Medicine PM-44)	5 weeks, part time, Oct. 20-Dec. 8, 1948	35.00
New York Academy of Medicine, 2 E. 103rd St., New York 29 At: New York Academy of Medicine and selected local hospitals	Advances in Therapy (The 21st Graduate Fortnight of The New York Academy of Medicine)	2 weeks, full time, October 4-15, 1948	10.00

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Postgraduate Courses for Practicing Physicians—July 1, 1948 to January 15, 1949—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	TROPICAL MEDICINE		
Tulane University of Louisiana Division of Graduate Medicine, 1430 Tulane Ave., New Orleans 13	Tropical Medicine and Public Health Leading to the Degree of Master of Public Health (Tropical Medicine)	9 months, Sept. 2, 1948 to May 30, 1949	500.00
	UROLOGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12	Two Weeks Urology	2 weeks, full time, September 27, 1948	225.00
Joint Committee on Post-Graduate Education, Long Island College of Medicine, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn 16 At: Long Island College Hospital	Urology	1 month, part time, beginning October 1948	50.00
New York Hospital (James Buchanan Brady Foundation), 525 E. 68th St., New York 21	Postgraduate Course in Urology	31 weeks, full time, 6 months or longer, January 1, 1949[63]	500.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Division of Graduate Studies, Basic Medical Sciences-Surgery, Medicine, Obstetrics and Gynecology, *Pediatrics*, Radiology, Urology, Otolaryngology, Pathology, Anesthesiology	9 months, October 1948	600.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Urology	8 months, full time, October 1, 1948	800.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	#1010 - Advanced Course in Urology for Specialists[1]	2 months, full time, Oct. 4-Nov. 24, 1948	$300.00
	#1010 - Advanced Course in Urology for Specialists[1]	2 months, full time, Jan. 3-Feb. 26, 1949	300.00
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4	Urology	8 months, October 1948-June 1949	800.00
American Urological Association, 899 Madison Ave., Memphis, Tenn. (Under the auspices of the Los Angeles Urological Society, in conjunction with the College of Medical Evangelists)	Graduate Instruction in Urology (Basic Sciences and their application to the problems of Urology	Last week in November 1948	Not given
	VENEREAL DISEASE		
United States Public Health Service, Hot Springs National Park, Arkansas and Arkansas State Board of Health At: USPHS Medical Center, Hot Springs National Park	Eleventh Postgraduate Course in the Clinical Management and Public Health Control of the Venereal Diseases	3 weeks, full time, Fall 1948	None
Wayne University College of Medicine, 1516 St. Antoine St., Detroit, Mich. At: Social Hygiene Clinic	*Conference on Venereal Diseases*	12 weeks, part time, Sept. 20-Dec. 11, 1948	15.00
	Conference on Venereal Diseases	12 weeks, part time, Dec. 13, 1948-Mar. 19, 1949	15.00
Bureau of Social Hygiene, City of New York Department of Health, 125 Worth St., New York 13	Postgraduate Course in Diagnosis and Treatment of Venereal Diseases	15 sessions, Fall 1948	None
At: Central Clinic	Practical Seminar in Diagnosis, Treatment and Control of Venereal Diseases	2 mornings a week throughout the year	None
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Venereal and Skin Diseases (Medicine PM-40)	6 weeks, part time, *Oct. 6-Nov. 24, 1948*	30.00
Graduate School of Medicine, University of Pennsylvania, 237 Medical Laboratories, Philadelphia 4 At: Institute for the Study of Venereal Disease, Hospital of the University of Pennsylvania, 36th and Spruce Sts., Philadelphia 4	Four Week Intensive Review Course (Venereal Diseases)	4 weeks, arranged	Not given
	Six Months Essential Basic Training (Venereal Diseases)	6 months, arranged	Not given
	Ten Day Intensive Training Course in Venereal Disease Control	*10 days, arranged*	Not given
	Three Week Venereal Disease Control Review Course	3 weeks, arranged	Not given

References will be found on page 749

FOOTNOTES

1. Specialists
2. M.D.'s with special qualifications.
3. Priority given to residents in surgery.
4. Tution.
5. Registration fee.
6. Incidental fee.
7. For 12 weeks.
8. For 16 weeks.
9. For 8 weeks.
10. Per month.
11. A third week, $65.00
12. Books.
13. Instruments.
14. Anatomy 120 hours, Pathology 60 hours, Physiology 60 hours: Students may enroll for any one section.
15. Requirements: M.D. degree from approved medical school. Appointment in an assistant residency or preceptorship approved by American Board of Obstetrics and Gynecology. Personal Interview. Course has been approved by the Post-Graduate Survey Committee of the American Board of Obstetrics and Gynecology and may be presented for 6 months' credit towards certification by the Board.
16. $800.00 for surgery; $600.00 for other specialities.
17. Per week.
18. This course is specifically for Residents in this area.
19. Per semester.
20. Each city.
21. American College of Physicians (A.C.P.) members.
22. Non-members.
23. This course is planned for those who have taken Electrocardiography I or who have sufficient experience in the interpretation of electrocardiograms.
24. This course may be taken for more than 2 months, if the student wishes, and the tuition is $125.00 for each additional month.
25. Per quarter.
26. Weekly, for shorter courses.
27. Internal Medicine, may be arranged in special cases, provided places are available, for 3 months beginning October 4, 1948, January 3, 1949 or April 4, 1949. ($250.00 for 3 months).
28. Trainee is paid $10.00 per day while on duty. It is required that at least 50% of the trainee's time be taken up with the diagnosis and treatment of cancer and that he will be on duty full time as an integral member of the hospital staff.
29. Intern and Resident.
30. Ten lectures.
31. Single lecture.
32. Per day.
33. Charge for non-members.
34. No charge for members.
35. For complete series.
36. Registration is gratis to men of armed services, residents and interns of hospitals and senior and junior medical students of the University of Kansas.
37. Eligibility limited to physicians practicing in Rochester Region.
38. Per course.
39. Complete course.
40. Per year.
41. For advanced students in training.
42. $300.00 the first year; $100.00 the following years
43. Approved psychiatric training required to qualify for the course.
44. For those with some training in psychoanalysis.
45. Primarily for students in analysis.
46. Special course open to staff and members of mental institutions.
47. Full course.
48. Lecture course only.
49. Course is limited to applicants whose biographical data is approved by a special committee.
50. Possibly $700.00.
51. Per hour.
52. Otolaryngology.
53. Ophthalmology.
54. 4 days.
55. 2 days.
56. Open only to selected members of course in Audiology and End-Aural Otologic Surgery.
57. Per two-month periods.
58. Each section - per 12 sessions.
59. Proctology I is prerequisite to Proctology III.
60. Course may be taken 6 days a week for one month or 3 days a week for 2 months.
61. Course devised specifically for physicians practicing in New York State as preparation for position of local health officer.
62. Limited to physicians who have a working knowledge of Radiology.
63. 31 weeks, full time, for veterans: 6 months or longer for others.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS
EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were published in THE JOURNAL, June 12, page 661

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Juneau, Last week in Aug. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau. Examination

FLORIDA: Examination. Gainesville, Nov. 6. Final date for filing application is Nov. 6., Mr. M. W. Emmel, University of Florida, Gainesville.

IOWA: Des Moines, July 13, Oct. 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Hapids.

MICHIGAN: Examination. Ann Arbor and Detroit, Oct. 8-9. Sec., Miss Eloise LeBeau, 1510 West Allegan St., Lansing.

NEBRASKA: Examination. Omaha, Oct. 5-6. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, Room 1009 State Capitol Bldg., Lincoln.

NEW MEXICO: Examination. Santa Fe, June 27. Sec., Miss Marguerite Kilkenny, State Capitol Bldg., Santa Fe.

OKLAHOMA: Spring of 1949. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: Examination. Portland, Sept. 4. Sec., Basic Science Examining Committee, Dr. C. D. Byrne, Univ. of Oregon, Eugene.

TENNESSEE: Examination. Memphis, July 5-6. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis.

WASHINGTON: Examination. Seattle, July 7-8. Act. Dir., Dept. of Licenses, Mr. G. C. Starlund, Sec., Miss Virginia Wotherspoon, Olympia.

WISCONSIN: Examination. Madison, Sept. 25. Final date for filing application is Sept. 18. Sec., Prof. W. H. Barber, Scott & Watson Sts., Ripon.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American Journal of Physiology, Baltimore
151:239-652 (Dec.) 1947. Partial Index

Relation of Salivary Flow to Thirst Produced in Man by Intravenous Injection of Hypertonic Salt Solution. J. H. Holmes and M. I. Gregersen. -p. 252.

Displacement of Blood from Lungs by Pressure Breathing. W. O. Fenn, A. B. Otis, H. Rahn and others. -p. 258.

Oxygen and Carbon Dioxide Tensions of Alveolar Air and Arterial Blood in Healthy Young Adults at Rest and After Exercise. M. Galdston and A. C. Wollack. -p. 276.

Measurement of Plasma Volume as Distribution Volume of Injected Autogenous Plasma. H. C. Lawson, O. W. Shadle, J. C. Moore and D. T. Overbey. -p. 297.

Peripheral Visual Acuity of 55 Subjects Under Conditions of Flash Presentations. F. N. Low. -p. 319.

Plasma Ac-Globulin Activity. R. C. Murphy, A. G. Ware and W. H. Seegers. -p. 338.

Protection of Cerebral Circulation by Cerebrospinal Fluid Under Influence of Radial Acceleration. R. F. Rushmer, E. L. Beckman and D. Lee. -p. 355.

Effect of Dilute Saline Solutions on Gastric Potential and Secretion of HCL. L.E. Hokin and W.S. Rehm. -p. 380.

Role of Dietary Protein in Experimental Liver Regeneration: Nitrogen Balance Study. H. M. Vars and F.N. Gurd. -p. 391.

*Working Capacity in Patients with Orthopedic Handicaps from Poliomyelitis. I. Energy Expenditure in Walking at Various Speeds and Grades. E. Simonson and A. Keys. -p. 405.

Forces Exerted at Different Velocities in Human Arm Movements. R. J. Dern, J. M. Levene and H. A. Blair. -p. 415.

Blood Volumes of Normal Children. Minerva Morse, D. E. Cassels and F. W. Schultz. -p. 438.

Roentgenographic Study of Effect of Pneumatic Anti-Blackout Suit on Hydrostatic Columns in Man Exposed to Positive Radial Acceleration. R. F. Rushmer. -p. 459.

Effects on Man of High Concentration of Carbon Dioxide in Relation to Various Oxygen Pressures During Exposures as Long as 72 Hours. W. V. Consolazio, M. B. Fisher, N. Pace and others. -p. 479.

Transient Hypotension Following Rapid Intravenous Injections of Hypertonic Solutions. E. E. Muirhead, R.W. Lackey, C. A. Bunde and J. M. Hill. -p. 516.

Increased Tolerance to Severe Anoxia on Carbon Dioxide Administration. R. F. Kline. -p. 538.

Types of Afferent Fibers in Phrenic Nerve. R. M. Kohrman, J. B. Nolasco and C. J. Wiggers. -p. 547.

Influence of High Fat Diets on Alloxan Diabetes. R. G. Janes and M. Prosser. -p. 581.

*Variations in Effect of Anoxia on Performance. D. M. Green. -p. 588.

*Observations on Effects of Adrenalin on Renal Function and Circulation in Man. J. A. Barclay, W. T. Cooke and R. A. Kenney. -p. 621.

Thermal Exchange of Man at High Temperatures. N. Nelson, L. W. Eichna, S. M. Horvath and others. -p. 626.

Working Capacity in Orthopedic Handicaps from Poliomyelitis.—Simonson and Keys compare energy expenditures of 2 poliomylitis patients, 1 clinically completely recovered from paralysis (E. B.), the other with an almost atrophic right leg (J.D.), to those of 2 normal subjects during walking on a treadmill at different speeds and grades. E.B.'s energy expenditure coincided with the normal values at all variations of speed up to 3.5 miles per hour with a slight tendency to higher values at 4 miles per hour. J.D.'s energy expenditure when walking with braces exceeded the normal values (1.5 to 2.6 times) at all variations investigated (up to 3 miles per hour). Without braces, J.D.'s energy expenditure was considerably higher than it was with braces. The respiratory efficiency of J.D. was definitely lower than that of the other subjects, at all variations. The level of the energy expenditure at a given variation characterizes the degree of handicap of a given patient. The trend of the curves indicates that 4 miles per hour is the limit of tolerance for E.B., and 2.5 miles per hour for J.D. The level of energy expenditure appears to be a good index for the relief obtained by means of braces. It is possible that this method could be used to compare different types of braces. The ability to maintain a steady state of oxygen consumption appears to be a good index for fatigue trends. The comparatively low oxygen debts of both J.D. and E.B. indicate that the breakdown of the steady state is not due to cardiovascular insufficiency. The maximum level at which the steady state can be maintained in normal subjects depends on the cardiovascular capacity for oxygen transport. Patients with orthopedic handicaps are obviously not able to reach this limit. Therefore, the increase of the oxygen consumption with continuation of walking is obviously due to the increasing use of auxiliary muscle groups. This might explain why in E.B. the breakdown of the steady state was not associated with an increased oxygen debt. The drop of the respiratory efficiency appears to be a good criterion for the limit of working capacity and for fatigue of patients with orthopedic handicaps as well as of normal subjects.

Effect of Anoxia on Performance.—According to Green, variations in the effect of anoxia on human performance may significantly alter the relative efficiency of persons working under lowered oxygen tensions. Among the factors known to influence these variations are rate of ascent, degree of activity and duration of exposure, state of health, psychogenic disorders and cardiovascular disease. However, when these factors are equalized, a considerable range of variation still remains. This study was undertaken to determine the relationship of anoxic alterations in individual neuromuscular functions to one another and to the mean performance of the subject. The differences in percentage impairment of various aspects of group performance indicate that the quantitative changes observed under conditions of anoxia depend not only on the subject but on the nature of the function under study. Net performance under such conditions is a composite result of alterations in a number of functions not similarly affected by an identical change in oxygen pressure. Individual subjects under anoxic conditions exhibit a considerable degree of variation both as to net decrement in performance and as to relative impairment of particular functions. As a consequence, tests which measure a single function are not apt to be of selective value in singling out the persons who can perform with maximum over-all effectiveness under low oxygen tensions.

Effects of "Adrenalin" on Renal Function.—Barclay and his co-workers point out that during exercise there is diminution in renal plasma flow and glomerular filtration rate, and in an attempt to elucidate the possible role of epinephrine ("adrenalin") in producing such changes the effects of the administration of the hormone on the renal hemodynamics in man have been reinvestigated. The subjects were students with normal renal function. Eight hundred milliliters of water were given by routh to insure adequate flow of urine. Renal plasma flow and glomerular filtration rate were determined. After two or more control periods, epinephrine was administered to 6 subjects intramuscularly and to 8 subjects by a continuous intravenous infusion. Blood pressure was determined by auscultation, and pulse rates were taken at intervals. A fall in inhibition of urinary flow was inconstant. There was no evidence that epinephrine plays a significant part in the renal picture seen in exercise.

Anesthesiology, New York
9:1-114 (Jan.) 1948

Centennial of Chloroform. B. B. Kindschi. -p. 1.
Pentobarbital Sodium-Curare Induction for Endotracheal Intubation. H. Carron, V. K. Stoelting and S. C. Cullen. -p. 11.
Regeneration of Soda Lime Following Absorption of Carbon Dioxide. R. Foregger. -p. 15.
Rationale and Hazards of Pressure Breathing and Oxygen Therapy. H. W. Ryder and R. A. Kehoe. -p. 21.
Endotracheal Anesthesia for Operations on Cleft Lip and Cleft Palate. M. D. Leigh and H.A. Kester. -p. 32.
Anesthesia in Surgery of Patent Ductus Arteriosus M. H. Adelman. -p. 42.
Diaphragmatic Paralysis. W. H. Cassels and L. A. Gittelson. -p. 48.
Adaption of Albee-Comper Table to Prone Position for Thoracic Surgery. J. D. Murphy and B.C. Svord. -p. 58.
Endotracheal Anesthesia with Sodium Pentothal for Maxillofacial Surgery: Report on 48 Cases. V. J. Collins. -p. 62.
Premedication and Anesthesia in Obstetrics: Practical Aspects. B. B. Hershenson. -p. 73.

Archives of Neurology and Psychiatry, Chicago
59:1-140 (Jan.) 1948

Growth and Development of Cerebral Cortical Pattern in Man. O. A. Turner. -p. 1.
Relation of Personality Problems to Onset and Progress of Multiple Sclerosis. O. R. Langworthy. -p. 13.
*Hemoconcentration After Electrically Induced Convulsions in Man. M. D. Altschule, J. E. Cram and K. J. Tillotson. -p. 29.
Spatial Organization of Visual Perception Following Injury to Brain. M. B. Bender and H.L. Teuber. -p. 39.
One Hundred Years of Progress in Neurology, Psychiatry and Neurosurgery. S. Cobb. -p. 63.

Hemoconcentration After Electric Convulsions.—In view of the fact that variations in the water balance influence the activity of the cerebral cortex and cause important changes in the body as a whole, Altschule and his co-workers decided to investigate the occurrence of hemoconcentration during the violent muscular contractions of electrically induced convulsions. Fifty-five studies of hematocrit readings and sixty determinations of plasma protein were made before and after routine electroshock treatments on 10 patients. It was found that hemoconcentration and decreased plasma volume occur regularly. Curare diminishes but does not abolish these changes. It is suggested that the decreases in plasma volume are probably important in explaining the fall in venous and arterial pressures noted toward the end of electrically induced seizures in many patients. The question arises whether the brief periods of muscular contraction occurring during electrically induced convulsions can cause the same type of response of the pituitary gland as a more protracted voluntary muscular effort. In the studies based on protracted exercise, antidiuretic hormone was liberated in detectable amounts only during a brief initial period of the exertion. The data of the present study are no more than suggestive in regard to activation of the function of the posterior lobe of the pituitary as a consequence of changes in the blood during electrically induced convulsions. Definite conclusions must await an attempt to evaluate the role of the passage through the brain of the electric current itself, with direct stimulation of the hypothalamic-hypophysial mechanisms.

Archives of Ophthalmology, Chicago
39:1-134 (Jan.) 1948

Influence of Grenz Rays on Cell Division and Wound Healing in Corneal Epithelium. G. K. Smelser and R. L. Pfeiffer. -p. 1.
Intramural Vascular System (Vasa Vasorum?) in Retinal Vessels. A. Loewenstein. -p. 9.
Stereoscope as Training Instrument. M. R. Stoll and P. Boeder. -p. 27.
Neurologic Significance of Lateral Conjugate Deviation of Eyes on Forced Closure of Lids. D. G. Cogan. -p. 37.
Chemosurgical Treatment of Cancer of Eyelid: Microscopically Controlled Method of Excision. F. E. Mohs. -p. 43.
Aniridia Congenita: Report of 5 Cases; Genealogy; Possibilities of Treatment. M. H. Pincus. -p. 60.
Human Conjunctiva Grafted on Chorioallantois of Chick Embryos. A. Feigenbaum and W. Kornblueth. -p. 67.
*Unilateral Syphilitic Primary Atrophy of Optic Nerves. Anatomic Study of 2 Cases. W. L. Bruetsch. -p. 80.

Syphilitic Atrophy of Optic Nerve.—Bruetsch says that in his anatomic material of 12 cases of syphilitic primary optic nerve atrophy, death had occurred in 2 at a time when the atrophy was confined to one optic nerve. Microscopic studies on the visual pathways in these 2 cases are presented. They furnished the clue to the ultimate degeneration of the nerve fibers of both optic nerves. The author arrives at the conclusion that unilateral syphilitic primary atrophy of the optic nerve is almost always the forerunner of bilateral atrophy of this nerve. At the time the demyelination of the nerve fibers has progressed to complete degeneration in one optic nerve, there is already present in the normal nerve a syphilitic inflammatory exudate which ultimately will lead to atrophy of the not yet demyelinated optic nerve. Syphilitic optochiasmatic arachnoiditis, which is frequently present in neurosyphilis, has nothing to do with the causation of the atrophy of the optic nerves. The most efficacious treatment of syphilitic atrophy of the optic nerve is malarial therapy, aided by concomitant and subsequent courses of penicillin, each course consisting of administration of at least 5,000,000 units.

California Medicine, San Francisco
68:57-120 (Feb.) 1948

Low Back Pain from Orthopedic Standpoint. H. T. Jones. —p. 57.
Consideration of Etiology in Development of Ruptured Intervertebral Disk. R. B. Raney and A. A. Raney.—p. 65.
Low Back Pain and Its Management by General Surgeon. E. D. Butler.—p. 70.
Back Pain From Gynecologic Standpoint. E. B. King.—p. 74.
Pyloric Stenosis Not a Disease of "First-Born." G. D. Delprat and O. Pflueger.—p. 76.
*Granuloma Inguinale. D. Frost and B. F. Ryan.—p. 77.
Family Physician and Medical Education. H. E. Thelander. —p. 78.
Psychoneurosis Based on Organic Ailment Cured by Electric Shock Therapy. D. R. Sears.—p. 81.
Perinephric Abscess Secondary to Renal Infection. A. M. Meads.—p. 83.
Benign and Malignant Prepyloric Lesions of Stomach. G. K. Smith.—p. 86.
Otologic Diagnostic Clinics of California. W. D. Currier.—p. 88.
Ophthalmologic Progress: Sight Restoration by Corneal Transplant. J. P. Lordan.—p. 90.

Granuloma Inguinale.—Frost and Ryan say that the increase in the Negro population in California has been accompanied by a greater incidence of granuloma inguinale. Since most medical texts stress the inguinal manifestations rather than the earlier genital lesions, many cases are at first not recognized or have been confused with other venereal diseases. Granuloma inguinale usually begins with a vesicle, papule or nodule on the preputial orifice, the labia minora or the vaginal wall. Of 8 cases of granuloma inguinale seen at Oakland City Clinic in a period of six months, all but 1 presented lesions confined to the genitalia. The chronicity of the lesions on the external genitalia is of differential diagnostic value. The diagnosis depends on the demonstration of the pathognomonic Donovan bodies in spreads which are prepared by crushing curetted material from the lesions between glass slides. The Donovan body, which *can be stained with Wright or Giemsa stains,* may be found extracellularly or within the cytoplasm of the large monocytes. These bodies look like a closed safety pin due to their elongated ovoid shape and intense bipolar staining reaction. The disease usually responds favorably to antimony compounds. Stibophen is considered to be the drug of choice.

Gastroenterology, Baltimore

10:1-176 (Jan.) 1948

Chronic Nonspecific Ulcerative Colitis: Roentgenologic Study of Its Course. W.E. Ricketts, J.B. Kirsner and W.K. Palmer. -p. 1.
Evaluation of Clinical Management of Chronic Ulcerative Colitis. E.D. Kiefer. -p. 16.
•Treatment of Idiopathic Ulcerative Colitis by Means of "Medical Ileostomy" and Orally Administered Protein Hydrolysate-Dextri-Maltose Mixture. T.E. Machella and T.G. Miller. - p. 28.
Chemotherapy and Antibiotics in Chronic Ulcerative Colitis. M. Block and H M. Pollard. -p. 46.
Psychiatric Factors in Ulcerative Colitis. G.E. Daniels -p. 59.
Surgical Treatment of Ulcerative Colitis. R.B. Cattell. -p. 63.
•*Hepatic Dysfunction and Cirrhosis in Chronic Ulcerative Colitis.* J.R.Ross and J.M.Swarts. -p. 81.
Movements of Esophagus in Presence of Cardiospasm and Other Esophageal Diseases. Roentgenologic Study of Muscular Action. F.E.Templeton. -p. 96.
Gastric Polyps. J.B. Carey and L. Hay. -p. 102.
•Gastroscopic Observations in Pernicious Anemia. L.L. Hardt, S.O. Schwartz and F. Steigmann. -p. 108.
Study of Gastric Acids in Prefrontal Lobotomy. J.A. Reed. -p. 118.
Repeated Gastroduodenal Hemorrhages Without Discoverable Explanation. B.H.Crohn, R.H.Marshak and D. Galinsky. -p. 120.
Studies on Gallbladder in Unanesthetized Dogs Before and After Vagotomy. W.J.Snape. -p. 129.
Changes in Motility of Human Small Intestine During Sleep. J.D. Helm Jr., P. Kramer, R.M. MacDonald and F.J. Ingelfinger. -p. 135.

Treatment of Idiopathic Ulcerative Colitis.—Machella and Miller recommended ileostomy to a young woman with chronic idiopathic ulcerative colitis, who was not responding to the usual medical measures. When she refused, it was decided to try to simulate a surgical ileostomy. The procedure consisted of introducing a Miller-Abbott tube into the terminal ileum and of maintaining constant suction so as to prevent the intestinal contents from reaching the diseased colon. To assure an adequate amount of protein food and to lessen the chances of the tube's becoming obstructed by solid matter, the oral administration of a solution containing equal parts of an enzymatic casein digest and of "dextri-maltose" was selected. The result in this patient was so satisfactory that it has been used in the treatment of others. The tube was kept in place for a period of seven to fifteen days. It was withdrawn when the volume of fluid aspirated had decreased sufficiently to indicate that most of the ingested solution was being absorbed and the patient was improving clinically. After the tube was withdrawn, the administration of the hydrolysate-"dextri-maltose" solution was continued until sigmoidoscopy revealed evidences of healing. At that time low residue foods were gradually added. Following discharge, the patient was advised to adhere strictly to the low residue diet. The 14 cases of idiopathic ulcerative colitis treated in this manner represent 12 patients, 2 of whom had relapses. A remission was induced in 11 of 12 patients, 9 of whom are still in remission after periods varying from two to twelve months. A relapse has occurred in 2 patients, in one after 7, and in another after 9 months of freedom from symptoms. A remission has again been induced in each of the 2. The 11 improved patients are in useful activity or gainful employment.

Hepatic Dysfunction in Ulcerative Colitis.—The study reported by Ross and Swarts was motivated by their observations of a patient whose ulcerative colitis was apparently complicated by severe hepatic disease and who ultimately died in hepatic failure. Twenty cases of chronic ulcerative colitis have been studied with the aid of liver function tests to determine evidence of active or latent hepatic damage. Two cases involving damage to the liver are discussed in detail. One hundred and fifty unselected cases of chronic ulcerative colitis were reviewed to determine the proportion of cases showing gross clinical evidence of hepatic disease. None was found. Twenty-seven cases of chronic ulcerative colitis were analyzed at necropsy for hepatic disease and were compared with 100 unselected necropsied cases in which death occurred from other causes. There was no greater incidence of hepatic insufficiency than occurs in other diseases in which uncorrected factors of severe anemia, weight loss and/or negative nitrogen balance appear. Sepsis or other hepatoxins or both add to the degree of hepatic damage. An analysis of the 20 specially studied clinical cases did not alter the pattern of incidence of damage to the liver. There is a trend toward hepatic insufficiency when weight loss, anemia and activity of the ulcerative disease are severe. The most significant results of liver function tests portending this change in hepatic function are a low serum protein level and/or the tendency to, or reversal of, the albumin-globulin ratio. The authors believe that correction of such factors as malnutrition and coincident protein deficit, plus correction of anemia when it is severe, are not only necessary measures in the treatment of chronic ulcerative colitis but offer needed protection to the liver.

Gastroscopic Observations in Pernicious Anemia. Hardt and his co-workers made gastroscopic studies on 100 patients with pernicious anemia. Nearly half of the patients were subjected to gastroscopy on two or more occasions. Atrophy was found in 59 of the patients; that is, *it is not present in all* cases of pernicious anemia. Atrophy of the gastric mucosa was not related to the length of time the disease was present, the amount of previous liver therapy or the existing blood picture. Only 9 of 47 patients showed improvement in the appearance of the mucosa while under liver therapy, while 4 previously normal mucosas showed atrophy on reexamination. Polyps were found in 7 patients and carcinoma in 1 patient; the latter developed while the patient was under liver therapy. Repeated roentgen ray and gastroscopic studies are *indicated* in every pernicious anemia patient to discover as early as possible the presence of gastric carcinoma.

Psychiatry, Washington, D. C.

10:355-452 (Nov.) 1947

Study of Psychiatry. Three Orienting Lectures. H.S. Sullivan.--p.355.
Psychologic Aspects of Obesity. Hilde Bruch.--p.373.
Schizoid Maneuver. W.V. Silverberg.--p. 383.
Quantitative Analysis of Case Records. Experimental Study. B. Berelson.--p. 395.
Age of Mass Communication. P. Meadows.--p. 405.
Personal Meaning of Human Figure in the Rorschach. M. Hertzman and Jane Pearce.--p. 413.
Observations of Japanese Early Child Training. Mildred Sikkema.--p. 423.

South Dakota Journal of Medicine, Sioux Falls

1:1-42 (Jan.) 1948

Brucellosis, Résumé of Diagnosis and Treatments. H. J. Harris. -p. 1.
Atomic Energy in Medicine. J. H Lawrence. -p. 11.
Functional Respiratory Disturbance with Hyperventilation as Cause of Symptoms. C. K. Maytum. -p. 19.
Urinary Changes in Cancer: Preliminary Report. A. M. Harris. -p. 23.

United States Naval Med. Bulletin, Washington, D. C.

48:1-152 (Jan.-Feb.) 1948. Partial Index

Modern Treatment of Progressive Deafness. C. A. Swanson and A. J. Delaney. -p. 1.
Liver Abscess. T. G. Hays, R. B. Brown and E. W. Godfrey. -p. 7.
Hepatic Amebiasis. H. J. F. Kullman. -p. 22.
*Ion Transfer of Penicillin. Efficacy of Penicillin Iontophoresis in Treatment of Chancroidal Ulcers. A. J. Pereyra. -p. 40.
Decortication of Lung in Organizing Hemothorax and Empyema. E. S. Lowe. -p. 52.
Therapy of Throat Infections with Bismuth vs. Penicillin. B. Schuster. -p. 61.
Radiographic Study of Fractures of Carpal Navicular Bone. J. L. Enyart, H. J. Brown and J. R. Trunnell. -p. 66.
Cardiac and Electrocardiographic Observations on American Prisoners of War Repatriated From Japan. W. M. Fischbach. -p. 69.
*Cotton Knots. R. L. Byron Jr. -p. 93.

Ion Transfer of Penicillin.--The experiments described by Pereyra were carried out to clarify the problem of ionic transfer of penicillin. It was found that without iontophoresis penicillin applied to the intact skin does not enter the body in amounts sufficient to be detected in the urine, but that sodium and calcium penicillin in adequate concentration in aqueous solution are effective electrolytic salts, and that penicillin applied to the intact skin by iontophoresis is absorbed into the body and is excreted in the urine in appreciable amounts. Only the negative electrode of the galvanic current applied to solutions of these salts effects the transfer of penicillin into the body. The transfer is accomplished most readily from free aqueous solutions of the salts, less readily from gauze pad applicators saturated with penicillin solution. The base was cut from an Erlenmeyer flask, and this open base was sealed to the skin with collodion applied to the rim. Eighty milliliters of penicillin solution were then poured into the glass chamber and the top closed with a stopper supporting a helical coil of copper wire which extended into the solution. This wire was connected to the negative terminal of a galvanotherapy unit. The positive terminal was connected to a thick layer of gauze wet with isotonic sodium chloride solution and wrapped around one leg. The application of penicillin by iontophoresis to the skin does not produce bacteriostatic blood levels of penicillin; the amount of penicillin recoverable in the urine following penicillin iontophoresis to the skin varies directly with the concentration of the solution, the duration of treatment and the strength of the current employed. Penicillin applied by iontophoresis is effective in the treatment of chancroidal ulcers.

Cotton Knots.--Byron says that it is usually stated that when cotton is used no attempt need be made to obtain a true square knot by crossing hands, and the suture may be cut "on the knot." In one of the operating rooms of a Marine field hospital during the Okinawa campaign, cotton was used as suture material. It was noted at the operating table that all too frequently the three knot tie had a disconcerting way of untying when a sudden strain was placed on the suture. Subsequently experiments with cotton suture material were made on a thread tester. It was found that the tensile strength of cotton is roughly proportional to the size. Double thread is slightly more than twice as strong as single thread. The presence of a knot in a thread weakens it by 18 to 33 per cent. A satisfactory knot with cotton which will not untie should be three square knots made by crossing hands and cut 1½ mm. from the knot.

Virginia Medical Monthly, Richmond

75:55-106 (Feb.) 1948

Review of Fractured Hips. M.A. Johnson Jr.--p. 58.
Ocular Changes in Metabolic Diseases. I.S. Tassman.--p. 70.
*Streptomycin in Acute Brucellosis: Case Report. S. G. Page Jr., M. Perchonock and J. P. Williams.--p. 75.
Treatment of Bacterial Pneumonias. H. Walker.--p. 78.
Health Problems of Negroes in Richmond. Zenobia G. Gilpin.--p. 80.
Myasthenia Gravis: Two Case Reports. H.C. Meredith Jr.--p. 84.
Management of Thyrotoxicosis. E.C. Toone.--p.-87.
Two Interesting Ear Cases. A.G. Schnurman.--p. 89.
Coordination of Urban and Rural Public Health. C.H. Ellar.--p.90.

Streptomycin in Acute Brucellosis.--Page and his associates report the case of a veterinarian, aged 22, who had been engaged in the manual removal of placentas from cows with Brucella abortus infection. He stated that headaches, moderate fever and malaise had persisted five to six weeks and that for three weeks he had had daily shaking chills and generalized aching late in the afternoon with elevations of temperature to about 103 F. An aggulutination test was reported positive for brucellosis in a dilution of 1:6,400. About six days prior to admission the patient received an injection of Brucella antiserum intramuscularly without effect on his clinical condition. The patient lost an additional 15 pounds (6.8 Kg.) during his first twenty days in the hospital. From the twenty-first to the twenty-seventh day, there was a slow downward curve in the temperature peak, chills disappeared and the patient began to improve subjectively. Intramuscular streptomycin therapy was begun on the twenty-ninth hospital day and after Brucella abortus had been isolated from blood culture. Four days after the initiation of streptomycin therapy the temperature began to subside, reaching normal on the eleventh day of therapy. Five months later the patient had returned to work and had regained his normal weight without return of signs or symptoms of the disease. The authors say that they reported this case because the status of streptomycin therapy in the treatment of infections due to Br. abortus is unsettled. Keefer has recently stated that chronic infections with Brucella organisms have shown poor response to the use of streptomycin.

Book Notices

Gifford's Textbook of Ophthalmology. By Francis H. Adler, M.D., Professor of Ophthalmology, University of Pennsylvania Medical School, Philadelphia. Fourth edition. Cloth. Price, $6. Pp. 512, with 310 illustrations. W. B. Saunders Co., West Washington Square, Philadelphia 5. 1947.

The fourth edition of this textbook, which has been revised by Dr. Francis H. Adler, lays more stress on information of practical value that the undergraduate and practicing general physician should know. Consequently, the technics of refraction and operations have been considerably condensed. The various surgical procedures are given in a separate chapter, so that the reader may refer to them when necessary without interrupting the subject under discussion. There is a completely new chapter on Ocular Disorders due to diseases of the central nervous system, which was not included in the previous edition. The chapter on Disturbances of Ocular Motility has been rewritten to coincide with the new author's point of view from the physiologic standpoint. The chapter on Ocular Manifestations of General Diseases has been considerably enlarged and includes the newer methods of treatment such as the use of penicillin and streptomycin. There are about one hundred more illustrations, which greatly enhance the reading value. The discussions are practical and concise, the illustrations are carefully designed to supplement the text and the contents are succinct and well organized. The book is to be recommended to the medical student and general practitioner as well as to the ophthalmologist.

Epilepsy; Psychiatric Aspects of Convulsive Disorders. Edited by Paul H. Hoch, M.D., New York State Psychiatric Institute, New York, and Robert P. Knight, M.D., the Menninger Clinic, Topeka, Kan. The Proceedings of the Thirty-Sixth Annual Meeting of the American Psychopathological Association, Held in New York, May 1946. Cloth. Price, $4. Pp. 214, with illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1947.

This slender volume contains the fifteen papers read at the meeting of the American Psychopathological Association in May 1946. The contributions are strangely diverse—the new and the old, the physical and the psychical. In the former group are excellent up-to-date discussions of drug therapy (Merritt), of electroencephalography (Jasper) and of heredity (Kallmann and Sander). There is presentation of data on the prevalence of epilepsy (Malzberg), its social implications (Collier), mental testing (Mayman and Rapaport) and the behavior and educational problems of patients of the Baird Foundation Clinic. Convulsions in animals were induced by application of certain substances to the cortex (Kopeloff and Pacella) and by auditory stimuli (Patton). Problems of the psychology and personality of epileptic persons are discussed in four papers by Foxe, Piotrowski, Diethelm and Mittelmann, respectively. These serve to emphasize the failure of psychiatrists and psychologists to show that peculiar personality is a cause or an essential feature of epilepsy. The authors point out the need for the collection and study of data in this important but difficult field. The book illustrates the extent to which psychologic research has failed to keep pace with medical research in the field of epilepsy.

Prognose und Erblichkeitsmomente bei Ekzema infantum: Eine klinisch-statistische Untersuchung von Allergieerscheinungen. Von Gunnar Edgren. Inauguraldissertation welche mit gehöriger Genehmigung der weiterfahrenen medizinischen Fakultät zu Uppsala. Paper. Pp. 204. Appelbergs Boktryckeriaktiebolag Uppsala, 1943.

The monograph reports a follow-up study of 381 cases of infantile eczema compared with 454 noneczematous controls. Special attention is given to heredity and nutrition in the causation of the disease and to its prognosis with respect to allergic manifestations such as seasonal rhinitis, bronchial asthma, urticaria, papular urticaria (strophulus) and angioneurotic edema. All patients had been seen in pediatric wards or clinics during the first two years of life; the interval between first and last observation varied from a minimum of seventeen years to a maximum of thirty-eight years. Allergic diseases were commoner in parents and siblings of eczematous children than in those of controls, but the presence of environmental factors prevented definite conclusions about the mechanism of inheritance. Infantile eczema occurred more frequently in boys than in girls. The average age of onset was 5 months. The initial lesion healed at an average age of 2 years, but one fourth of the cases cleared up at as early as 15 months, one quarter at as late as 3⅓ years. Besnier's prurigo followed in 18 per cent of the cases; eczema recurred in 24 per cent, but never more than once in the same patient. No difference was found in the incidence of infantile eczema in breastfed and bottlefed children. Forty-two per cent of the eczematous children had occasional allergic symptoms (controls, 10 per cent); 21 per cent were continuously affected (controls, 2 per cent), and only 37 per cent remained free of symptoms: these figures seemed to support the existence of a common hereditary factor in infantile eczema and other allergic manifestations. Patients whose parents had allergies and those with early and extensive eczema showed a high incidence of allergic symptoms in later years; bronchial asthma is more apt to develop in boys with infantile eczema than in girls. The mortality rate of the eczematous group does not differ from that of the noneczematous controls.

Calcific Disease of the Aortic Valve. By Howard T. Karsner, M.D. and Simon Koletsky, M.D. Fabrikoid, Price, $5. Pp. 111, with 24 illustrations. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1947.

In this monograph the authors present a new and authoritative evaluation of an old and controversial subject. Beginning with Valsalva, they have made a comprehensive survey of the literature on calcific disease of the aortic valve. They have reviewed the classic studies of Monckeberg on the histology of normal and sclerotic aortic valves, and with this as a background they have analyzed their own 200 cases observed at necropsy. The anatomic analysis is carefully made, and with the aid of proper statistics they have been able to extract from their material a truer picture of certain factors involved in this disease than have any previous investigators. Excellent tables, charts and photographs help to present clearly the typical anatomic observations and the numerical data.

The authors point out the preponderance of cases in persons over 50 years of age, the relatively high incidence in males as opposed to females (1.6 to 1 when the corrections are made for the relative proportions of males to females in the autopsy population) and the low incidence in the Negro race. Cardiac enlargement, although a prominent factor in many cases, was not present to a significant degree in a large percentage. Rheumatic stigmas in various forms and of varying degrees were definitely demonstrable in 196 of 200 hearts examined. Microscopic evidence of rheumatic disease was usually present in more than one valve, but deforming valvular disease of a single valve was present in slightly less than half of the cases. The authors conclude from their studies that in all but a rare instance calcific disease of the aortic valve is the result of rheumatic cardiac disease.

Clinical features of the cases are described in detail. The diagnosis of aortic stenosis was offered in only 48 of 190 cases in which it might possibly have been made in life. Cardiac enlargement, systolic aortic murmurs and thrills, and left ventricular preponderance in the electrocardiogram appear to be *the most dependable clinical signs.* It is pointed out that roentgenologic studies have more to offer to clinical diagnosis than any other single method of observation. This book is highly recommended for those interested in diseases of the heart.

The Clinical Examination of the Nervous System. By G. H. Monrad-Krohn, M.D., F.R.C.P., Professor of Medicine in the Royal Frederick University, Oslo. Eighth edition. Fabrikoid. Price, $4.50. Pp. 380, with 126 illustrations. Paul B. Hoeber, Inc., 49 E. 33d St., New York 16, 1947.

The present edition of this excellent book on the clinical examination of the nervous system is larger and is entirely up-to-date. It has been thoroughly revised and recast. The author is one of the great neurologists of the world, and his book is essentially based on the fact that the physician must examine his patient in order to determine the nature and location of the disease or lesion. Angiography is discussed and in the opinion of the author is a great stride forward in intracranial diagnosis. This book is one of the best on clinical examination in neurology. It is highly recommended for all medical students, residents and general practitioners.

Practical Office Gynecology. By Karl John Karnaky, M.D., Assistant Professor of Clinical Gynecology, Baylor University College of Medicine, Houston, Texas. Fabrikoid. Price, $7.50. Pp. 261, with 113 illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Ill., 1947.

The information presented in this book is based on laboratory and clinical investigations of Trichomonas vaginalis, Monilia albicans and leukorrhea. These subjects therefore are emphasized in the book, but of course others are included, particularly endocrinology, sterility, disorders and infections of the external and internal genitals and orthopedic and urologic aspects of gynecology. These chapters are proper subjects for a treatise on practical office gynecology, as is also the interesting chapter on "Some Psychological Aspects of Gynecology" written in collaboration with Louis Spivak. However, it is difficult to see why the author included in a book on office gynecology the following chapters: "Pregnancy Tests, Management of Abortion, Premature Labor and Postpartum Bleeding" and "Ovarian Pathology," which includes more than three pages of illustrations of ovarian tumors and a discussion of surgery of the ovary. Other illustrations which have nothing to do with office practice are those of intestines removed during a criminal abortion, surgical specimens of utero-ovary, Brenner and granulosa cell tumors, hydatid mole and other neoplasms.

The author is fond of injecting estrogens into the anterior wall of the cervix to control bleeding, and he says he injects as much as 25 cm. of an oily vehicle into the cervical muscle (p. 39). In the treatment of infantile uterus the author states that "a properly fitted flexible stem pessary which induces strong contractions with concomitant myometrial development may be helpful (Bickers)." This is a dangerous recommendation for general practitioners, and the author himself must have realized this because he added a footnote saying the "Uterector, a soft flexible stem pessary, should be employed only by those experienced in its use since it can produce more harmful than beneficial effects under some circumstances. It is a dangerous instrument in the hands of the untrained physician." Then why even mention it in this book intended for general practitioners?

There is a full page colored illustration of the technic of uterotubal insufflation (p.55) using air as the gas. It is not safe to recommend the use of air for the determination of tubal patency, because harm can result from it. Carbon dioxide is the safest gas to use for this purpose. The book contains numerous beautiful and instructive black and white and colored illustrations, but unfortunately many of them have appeared in the advertisements of pharmaceutical manufacturers. In the opinion of the reviewer this fact detracts from the enjoyment of the book. Karnaky has written many articles on vaginal discharges, vaginal acidity and the use of estrogens. This is evident in the list of references, which occupies eleven pages. The author lists himself forty-three times for articles, discussions and correspondence to medical journals. The book is well printed on sturdy paper and the illustrations have been beautifully reproduced. It is hoped that in the next edition Karnaky will omit the data which have nothing to do with office practice and include a few other subjects which are of importance to general practitioners in their office practice.

Pédagogie du nourrisson et du premier âge. Par le Dr. A. Thooris. Paper. Price, 270 francs. Pp. 185. G. Doin & Cie, 8, Place de l'Odeon, Paris, 6^{e}, 1947.

An anthropologist ventures into child rearing on the basis of his personal experience with his own children. Dr. Thooris attempts to apply physiologic principles in the every day management of infants and children. He considers the newborn beneath the developmental level of an animal, since the lack of excitability of the hemispheres at birth makes the infant comparable to a decerebrate dog. This is the concept of the absolute infant reduced to several inherited reflexes but deprived of all means of satisfying them. The mother is in the directive position of transforming her absolute infant into a conditioned being. An acquired reflex cannot be stabilized unless it is reenforced by an absolute reflex. As a student of Pavlov the author classifies reflexes as subcortical and cortical. The former are hereditary, few in number, stable and nonfatigable by virtue of their rhythmic character. The latter comprise the reflex of life and death, the reflex of hunger, the reflex of inquiry, the reflex of freedom and the sexual reflex. Thooris considers the reflex of hunger basic for educational training throughout life. Unfortunately, he uses the methods of animal trainers to teach infants. Indeed, he addresses a plea to the mothers of France to nurse their babies with "live" milk from their breasts rather than with "dead milk" from the cow. He does not consider it a profanation to speak of this absolute infant at birth as equivalent to an absolute dog in spite of the horror this image conveys to the mother. The parallel is strengthened by the contention that the decerebrate dog and the newborn infant would each die in front of a bowl of food or a bottle full of milk if one did not put the morsel in the jaws of the animal or the nipple in the mouth of the baby. In the attempt to study the development of the child from the mechanistic concept, the author fails to view the offspring against his hereditary, social and economic background. It must be remembered that intrauterine life lays the foundation for the child's future life and that birth, though an unavoidable necessity, is but one milestone from the uterus to the grave. Compared with other animals the child is peculiar in that his instinctive habits are extremely complex. Thooris reveals with remarkable clarity how the child's reactions are formed only after long processes of development and conditioning. Behavior patterns such walking, which is spontaneous in animals, must be acquired by the child. He has to learn innumerable performances, which in later life become habitual, in a way acceptable to the social group of which he is a member. He is also expected to undergo scholastic education according to his ability to develop habit patterns of abstract and applied knowledge. The period of apprenticeship which he serves before reaching full intellectual and emotional development is associated with a corresponding period of gradually diminishing physical immaturity. The author rightly points out that the infant is exceptionally vulnerable not only to trauma but to extremes of temperature, changes in diet and exposure to infection. The central nervous system of the infant is poorly myelinized, his digestive function limited and his blood-forming organs readily disorganized. These are not the characteristics in the developmental course of young animals. Consequently, the methods of animal husbandry can only be orientations rather than applications for rearing infants. Even the methods advocated by Thooris are human compromises. The chapters on conditioning of infants and training of young children constitute a sensible system of child guidance in the cause of healthy maturity.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

INTERMITTENT CLAUDICATION

***To the Editor:*—What can be done to relieve intermittent claudication?**

M.D., Long Island, N. Y.

Answer.—Intermittent claudication is a symptom of the following conditions: severe sclerotic changes in the arteries of the legs; arteriosclerosis in the spinal cord in the lumbosacral region; thromboangiitis obliterans (Buerger's disease) and peripheral vascular spasm in the legs. This symptom is at times associated with gout, diabetes mellitus and syphilis. Those patients who have sclerotic changes in the arteries of the legs and spinal cord can at best be treated only symptomatically. Patients with thromboangiitis obliterans are supposed to have an increased viscosity of their blood as well as an increase in cholesterol content in their blood. If gout, diabetes or syphilis are present they should be adequately treated. If pain is present without walking (rest pain) then that patient should be put to bed for at least two months to improve the circulation in the legs and to reduce the viscosity of the blood by large copious amounts of liquids. Smoking should be absolutely forbidden. Vasodilators in the form of injections of sodium nitrite and methacholine chloride should be tried three to four times per week. Injections of tissue extract three times a week should also be tried. Phenobarbital and papaverine hydrochloride may be tried. If the patient's pain decreases or vanishes, then that patient must be told to walk only when necessary. He should not run or walk fast and should not participate in any exercise or sport requiring the use of his legs. Diathermy, periarterial sympathectomy and baths have been tried but have not proved valuable. Every effort must be made to prevent gangrene, because when it develops amputation of the involved extremity is indicated. All patients should be warned against injuries to the feet and wearing of tight shoes. They should not use hot water bottles and must be extremely careful in cutting corns and trimming nails.

TRANSPLANTATION OF OVARIES

***To the Editor:*—A patient states that she had both ovaries and tubes removed and that she menstruated over a year after the operation. She now desires to know whether it is possible to transplant viable ovaries and tubes from another person to her broad ligament and uterus. She would like to have a baby of her own.**

Is any surgeon capable of successfully performing such operations? My patient is willing to undergo operative intervention if there is a fairly reasonable chance of success.

Raymond M. Stover, M.D., Francesville, Ind.

Answer.—Neither the age of the patient nor the year of the operation is stated. If this patient had periodic bleeding for more than a year after her operation, she must have had some ovarian tissue left which functioned during this time.

There are many recorded cases of transplantation of a patient's own ovary or part of one from its normal location to a cornu of the uterus or within the uterine cavity. These are autoplastic operations. These operations are done for one or two reasons, namely to prevent menopausal symptoms and to permit pregnancy. Concerning the results of autoplastic operations, J. P. Greenhill (*Am. J. Obst. & Gynec.* **33:**39 [Jan.] 1937) says the following:

> *Von Graff collected 66 cases in which a graft of ovarian tissue was* placed on a uterine horn or on a tubal stump. He reported 14 pregnancies (21.2 per cent) following these operations. However, since only 5 of these pregnancies went to term, only 7.6 per cent of the operations, or 1 in 13.2 operations, resulted in a full term baby. Among the remaining 9 gestations, there were 6 abortions and 1 ectopic pregnancy. The outcome in 2 cases was unknown. In Von Graft's collected series of 41 cases in which an ovary was transplanted into the uterine cavity, only 3 pregnancies (7.5 per cent) resulted, of which 1 went to term (2.4 per cent) and the other 2 ended in abortion. Reiprich collected 200 ovarian transplants of all types and reported only 5 pregnancies (2.5 per cent) following these operations. Estes followed up 27 of 88 patients on whom he had performed his ovarian transplantation operation and found that pregnancy had occurred in 4 of them (15 per cent). In a later article, Estes reported that in a series of 50 patients whose case records were complete, only 4 became pregnant (8 per cent). Two of these women had abortions and 2 had full term babies.

No one has ever reported the transplantation of a tube or tubes from one woman to another, but transplants of ovary from one woman to another (homoplastic operations) have been made many times. In practically every instance the ovarian tissue was transplanted in order to prevent or overcome the distressing symptoms of the menopause.

As far as is known, the only case on record in which an ovary from one woman was transplanted into another and the latter became pregnant and gave birth to a living child was that reported by Robert T. Morris (*Med. Record N. Y.* **69:**697, 1906).

The chances of success in this case are so slight that an operation is not justified. Certainly if the patient is more than 35 years of age the idea of an operation should not be entertained.

DEXEDRINE

***To the Editor:*—What is the danger of using "dexedrine" for weight reduction? I believe I patient has diabetes produced by this drug. I do not prescribe it.**

G. Raymond Johnson, M.D., Ottumwa, Iowa.

Answer.—Dexedrine is *d*-desoxyephedrine, a drug whose actions are qualitatively similar to those of amphetamine. Quantitatively, the drug has somewhat more central stimulating action and somewhat less circulatory action than amphetamine. In common with other sympathomimetic agents, *d*-desoxyephedrine can produce an increase in blood sugar level, which may be sufficient to result in a transient glycosuria. Evidence that use of the drug produces diabetes does not exist. If given to a person already suffering from the disease it may aggravate symptoms. Diabetes is a contraindication to its use.

The Council on Pharmacy and Chemistry has recognized amphetamine and *d*-desoxyephedrine as adjuncts in the treatment of some cases of obesity. These drugs may depress gastric motility, thus allaying the sensation of hunger and making it easier for the obese person to follow a rigid dietary regimen. Furthermore, the central action of these drugs may assist in overcoming certain depressive states which, in some patients, may be responsible for overeating. These drugs should not be used routinely in the treatment of obesity. Patients to whom they are administered should be closely observed by the physician for possible untoward effects.

METALLIC PINS FOR FEMORAL NECK

***To the Editor:*—Discuss reasons why pinning of fractures of the neck of the femur by metallic pins, such as the Smith-Petersen nail, results in anatomic failure. When a patient leaves the operating table with the head and neck of the femur in perfect anatomic alignment, why will these show dislocement three weeks later although the patient has been kept in bed without a cast?**

M.D., Illinois.

Answer.—It is assumed that "results in anatomic failure" means: a displacement of fragments at the fracture site after what was thought to be perfect anatomic alignment resulting in incomplete apposition in one or more planes, angulation, separation; rotation of the head of the femur and untoward change in the angle of the neck of the femur, and/or with possible cutting through or retraction of the fixation nail. The reasons for any one or a combination of these subsequent findings may be listed in order of importance.

Failure to effect complete reduction of fragments and kissing coaptation of head onto trochanteric portion as shown by roentgenograms in at least two planes, anteroposterior and lateral: Even in a supposedly good reduction in the anteroposterior plane the cortical edges of the head and trochanteric fragment may not perfectly align; the lower cortical edge of the trochanter often overlaps or rides up under the edge of the capital fragment, thus interfering with reduction of the trabecular lines of the calcar femorale and possibly causing tilting or angulation of the head, which will slip further out of place very easily (and possibly lead to nonunion). This fault is often a result of failure to secure a sufficient amount of internal rotation of the femur.

Failure of the nail to penetrate sufficiently deep into the head of the femur: The pin may have been too short, or an unhappy angle of introduction of the nail through the trochanteric portion of the bone into the head may have occurred. The pin must skirt along the inferior cortical margin of the trochanteric portion and pass obliquely up into the head.

Failure to use a preliminary guide wire which penetrates and gently fixes the head after complete reduction in all planes: When such a guide wire is not used, the forceful driving in of the nail, as it reaches the fracture plane to pass into the head, may cause the head to angulate or rotate during its penetration.

Failure to check the position of fragments and nail by roentgenogram in at least two planes immediately after the nail is inserted.

Failure to impact the completely reduced fracture surfaces after the pin is inserted.

Multiple attempts to insert the nail: Its withdrawal and reinsertion may break down the cortical bone surface of one or both fragments, so that the bone does not hold well and permits angulation or rotation on slight motion or too early use of leg later, while the patient is lying in bed.

Failure of proper support or immobilization of leg after the most careful nailing: The leg may be supported in a Thomas leg splint in enough suspension in internal rotation to hold its weight off the surface of the bed and with continued skin traction to aid this without pulling the fragments apart, or the patient may be placed in a body plaster of paris spica for four to six weeks to insure support of the leg in the correct position during the early stages of healing. Many surgeons have returned to this wise course of postoperative fixation by external splint

Failure of careful postoperative supervision. Allowing the patient too much active motion of the limb, unguarded rough handling in nursing care or use of the bedpan, thus causing twisting and rotation of the limb especially outward, leads to strain on the nail support, which is exceedingly weak across the fracture plane

Failure to furnish a properly supporting nonsagging bed surface or to force the patient too early into a sitting position, with the leg lying unsupported.

Failure of the nail to hold even though the insertion seems proper after complete reduction and good aftercare, because the bone is atrophic or highly demineralized and the holding friction against the surface of the nail is almost nil from the start

Most troubles of this nature result from incomplete reduction imperfectly checked by roentgen ray and/or lack of suitable postoperative fixation and control The operator must not allow himself to be satisfied short of complete check on all the factors mentioned, and the work must be done by one who is thoroughly qualified.

SYPHILIS OF THE CENTRAL NERVOUS SYSTEM

To the Editor.—Now that penicillin is becoming accepted in the treatment of syphilis of the central nervous system and numerous authors have confirmed the excellent results obtained with fever treatment in conjunction with penicillin, what is current opinion on the advisability of chemotherapy following fever and penicillin treatment

I refer to cases of syphilis of the central nervous system in patients with psychosis who must be hospitalized for fever treatment. Latest opinion seems to favor observation of these patients for a two year period without giving arsenic and bismuth preparations if the spinal fluid findings continue to be favorable This treatment appears indicated if there is a reversal in the spinal fluid formula when chemotherapy is begun. Is it still not advisable to give intensive chemotherapy to such psychotic persons, in addition to fever and penicillin, regardless of the improvement which may be observed in the two year period of observation of the spinal fluid formula?

Dr. Dattner, Dr. Curtis of the Rochester group, Dr. Stokes of Pennsylvania and Dr. Moore of Johns Hopkins maintain that "retreatment" should be recommended if a "relapse" is indicated What should be considered "a relapse" and what is the latest consensus concerning the use of tryparsamide in routine treatment of syphilis of the central nervous system? I understand that Dr. Stokes in 1944 stated definitely that it did not accomplish more than routine trivalent arsenic does.

I refer in the foregoing to cases of syphilis of the central nervous system without adequate chemotherapy preceding fever and penicillin treatment. If the patient had had adequate chemotherapy prior to such institutional treatment further chemotherapy may be of questionable value. However, in the absence of such previous chemotherapy, a two year course of chemotherapy appears indicated just as long as the spinal fluid formula has not completely returned to normal As penicillin and fever treatment, without routine chemotherapy, has not been used for a sufficient period to be able to say that patients may not relapse years afterward, it would seem to me that one is not yet warranted in assuming that the future outlook for these patients may not be jeopardized by the failure to give routine chemotherapy after fever and penicillin.

M.D., California.

Answer.—The consensus among authorities before the introduction of penicillin was that chemotherapy should be used following fever therapy of paresis (Moore, J. E: The Modern Treatment of Syphilis, ed 2, Springfield, Ill., Charles C Thomas, 1941). In this country tryparsamide and bismuth preparations were usually given over a minimum period of two years. Tryparsamide was used because of the evidence of the inefficacy of trivalent arsenicals in paresis. Bismuth was used to help control syphilis outside the central nervous system because of the evidence that activity of such lesions might occur in patients whose paresis had been controlled by fever therapy. In patients who had had little or no chemotherapy preceding the induction of fever, courses of trivalent arsenicals were frequently also administered to help control syphilis outside the nervous system.

An authoritative opinion with regard to chemotherapy following the administration of treatment of paresis is given in Moore's monograph (Moore, J. E.: Penicillin in Syphilis, Springfield, Ill., Charles C Thomas, 1947). Authorities in this field with few exceptions have not advocated chemotherapy with arsenic and bismuth compounds after the administration of penicillin and fever, even though it is true that sufficient time has not elapsed to be sure that improvement in paretic patients will be in general well sustained.

There are several reasons for the change in attitude regarding prolonged arsenic-bismuth chemotherapy. 1. It is already clear that favorable effects of penicillin on lesions of late syphilis are not principally limited as with fever therapy to the central nervous system. 2. There is increased skepticism concerning the real effectiveness of tryparsamide in syphilis of the central nervous system. While the effectiveness of tryparsamide in paresis has not been adequately reinvestigated in recent years, studies such as that of Hahn and Clark (Hahn, R. D., and Clark, E. G.: Asymptomatic Neurosyphilis: Prognosis, *Am. J. Syph., Gonor. & Ven. Dis.* **30**:513, 1946) have emphasized the possibility that the effectiveness of tryparsamide in syphilis of the central nervous system has been overrated. 3. The influence of the Dattner-Thomas concept (Dattner, B.; Thomas, E. W., and Wexler, G.: The Management of Neurosyphilis, New York, Grune & Stratton, 1944) of spinal fluid changes associated with activity and inactivity of syphilis of the central nervous system has been felt. These workers, who had argued against the necessity of prolonged postfever chemotherapy in the treatment of paresis even before the introduction of penicillin, have advanced the concept that while pleocytosis, increased protein and abnormal colloidal test curves are associated with activity of the syphilitic process, positive serologic tests without abnormalities in protein and cells are not associated with activity. While it is true that many authorities are not willing to accept this concept as an invariable rule, it has certainly had considerable influence against the use of chemotherapy following penicillin-fever therapy of paresis.

All authorities advise close follow-up of treated paretic patients. Spinal fluid examinations should be done every six months for two years and preferably every three months during the first year. Indications for retreatment are unsatisfactory clinical improvement after six months' observation, clinical relapse or relapse in spinal fluid abnormalities. The prognosis of patients in whom retreatment is necessary is frequently poor. This is particularly apt to be true if in the first treatment the full course of fever (forty or more hours of fever over 104 F.) and high dosage of penicillin (6,000,000 units of penicillin or more over a period of fifteen days or longer) were employed.

In retreatment, fever therapy should be used, particularly if the previous fever therapy was inadequate, and penicillin dosage should be doubled and given over a longer period of time. Penicillin therapy may succeed the second time in spite of a previous failure, as is the case with early syphilis; tryparsamide therapy could also be given.

"SYNTROPAN"

To the Editor:—Please discuss "syntropan" (phosphate salt of 3-diethylamino-2, 2-dimethyl-propanol tropic acid ester) as an aid to dilatation of the cervix in the first stage of labor. Has the drug shown clinical benefit in shortening the first stage of labor?

Arthur Whitlatch, M.D., Milan, Ind.

Answer.—J. E. Stoll (*Am. J. Obst. & Gynec.* **42**:473-477 [Sept.] 1941) maintained that "syntropan" had a definite antispasmodic action in labor. In the patients on whom he used this drug, labor was on an average about one half as long as in the control patients. R. Cron, E. A. Banner and W. F. Hovis (*ibid.* **45**:295 299 [Feb.] 1943) found that there was only six minutes difference in the length of the first stage in women treated with "syntropan" and in the controls.

J. A. Wells, D. D. Albers and A. C. Ivy (*ibid.* **46**:222-229 [Aug.] 1943) performed animal experiments with the drug. They state, "The implication found in the clinical literature that syntropan hastens cervical dilatation by relaxing the cervix does not receive support from the present observation that this drug does not relax the cervix of the postpartum dog. . . . In all probability, cervical dilatation is a physiologic adjustment to the presenting part, and is accomplished by effective contractions of the body of the uterus. Therefore it would appear that hastening of cervical dilatation might best be accomplished by a drug which increased the effectiveness of the contractions of the body of the uterus."

VAGINAL SMEAR CANCER TEST

To the Editor:—It has been called to my attention that Dr. Joseph V. Meigs of the Harvard Medical School of Boston and Dr. J. Ernest Ayre of the Royal Victoria Hospital of Montreal, Canada, have done some work on cytology along with Dr. George N. Papanicolaou of the Cornell University Medical College of New York in connection with the early diagnosis of cancer, particularly uterine cancer, by an examination of a vaginal smear. Is this an acceptable method of the diagnosis of cancer?

Norman H. Smith, M.D., Minneapolis.

Answer.—The vaginal smear is apparently an accepted method of diagnosis of cancer of the cervix and ought to be accurate anywhere from 95 per cent to 100 per cent; the method is accurate in only about 80 per cent of cancers of the endometrium or body of the uterus. There are too few pathologists trained to perform a cytologic examination properly, and more should be thoroughly trained. Eventually cytologic diagnosis will fall into the same category as the diagnosis of tuberculosis of the kidney or of the lungs and also the Wassermann test.

KHELLIN

To the Editor:—What is the information on the use of Khellin in the treatment of bronchial asthma? This was recently mentioned in *Cosmopolitan* magazine and in *Collier's*.

M.D., Illinois.

ANSWER.—Khellin is one of several active principles obtained from Ammi visnaga Lam., an umbelliferous plant indigenous in the countries around the Mediterranean, whose fruits, under the name khella, have long been used in Egypt in the treatment of ureteral spasm and kidney stone (U. S. Dispensatory, 1943).

Khellin ($C_{14}H_{12}O_5$) is mentioned in the abstract (THE JOURNAL, June 28, 1947, p. 835) of the report of Anrep and his associates on Ammi visnaga for the anginal syndrome, published in the *British Heart Journal*, October 1946, page 171. These investigators, reporting from the Physiological Laboratory and the University Hospital, Cairo, Egypt, stated that the crystalline preparation of khellin which they used was obtained from Professor K. Samaan of the department of pharmacology of the University of Cairo and from the Physiological Laboratory of this institution. An early report by Samaan appears in the *Quarterly Journal of Pharmacy and Pharmacology*, London, 1932, page 6; a preliminary report by F. A. Upsher Smith of Ammi visnaga appears in the *Journal of the American Pharmaceutical Association*, March 1933, page 184; the U. S. Dispensatory also provides a brief discussion of the drug.

Apparently the drug has recently been used experimentally in the treatment of asthma and also as a coronary vasodilator. A brief note in *Lancet* (London), May 17, 1947, page 682, is concluded with the following paragraph:

"That khellin may have further uses is suggested by the observation that after a single intramuscular injection of 200 to 300 mg. 'complete and prolonged relief' was obtained in 41 of 45 patients with severe bronchial asthma; and even this fairly large dose had no effect upon the blood pressure. It has, moreover, relieved attacks resistant to adrenaline and aminophylline. Whether, as suggested, khellin is safer than aminophylline is not yet certain, for experience with it is so far small. If, however, khellin is to come into general use preparations of it must be purified and standardized, for there is some evidence that the impurities in Ammi visnaga may be toxic."

These reports, though promising, do not provide adequate evidence on which to base a satisfactory evaluation of the therapeutic worth of khellin in the management of asthma, and until further confirmatory studies with suitable controls become available the status of the drug must be considered to be in the experimental stage.

Information is not available to show that khellin or any other active principles of Ammi visnaga are available commercially in this country, nor is there knowledge of any efforts which the Egyptian Chemical and Drug Industries of Cairo, apparent promoters of the drug, may have made to secure the introduction and therapeutic trial of its preparations "visammimix" and "khellinin" in the United States.

RETCHING AND ARSPHENAMINE

To the Editor:—What will prevent retching after intravenous arsphenamine treatment?

S. Englander, M.D., Cleveland.

ANSWER.—Retching after an intravenous injection of arsphenamine is not a common complaint. It might be due to a psychic effect rather than the arsenic. Eating of peppermint candy at the time of the injection is said to be of help. Otherwise, it would seem that a small dose of sodium bicarbonate would be sufficient.

SLUDGING OF BLOOD

To the Editor:—Have observations been published regarding the combined use of anticoagulants and penicillin in infectious diseases? In view of recently published studies on the sludging of blood in the arterioles in infectious diseases would not such therapy appear to be a logical conclusion? Is it possible by improving circulation in the capillary bed with anticoagulants to enhance distribution of penicillin? In infectious diseases in which anticoagulant therapy was used because of concomitant thrombophlebitis it was my impression that the combination therapy shortened the illness.

Fritz F. Blumenthal, M.D., Middletown, N. Y.

ANSWER.—Thus far nothing has been published regarding the combined use of anticoagulants and penicillin in infectious diseases. It would seem theoretically that such a method of treatment might be advantageous because of the sludging of blood in the arterioles which has been reported to occur in a number of acute infectious diseases. If an anticoagulant was to be given in the manner that you suggest, it would undoubtedly be necessary to administer it early in the course of the infection. Further studies may confirm the impressions that you hold in this respect.

"PITRESSIN TANNATE"

To the Editor:—Please comment on the feasibility of "pitressin tannate in oil" for the treatment of hypertension, as advocated by Dr. John Q. Griffith of Philadelphia. Likewise, his recommendation of roentgen radiation of pituitary. Is the clinical evaluation which he places on bioassay of urine in hypertensive persons valid? For instance, is the high incidence of what he calls "excess amount of anti-diuretic principles of post pituitary gland" in hypertension as common as he claims? Can "pitressin tannate" be used in hypertensive heart disease accompanied by coronary sclerosis with safety? Is the clinical evaluation which he places on plasma creatinine physiologically sound? Explain the clinical use of rutin.

M.D., N. Y.

ANSWER.—The theoretic concept applied to justify the use of "pitressin tannate in oil" in the treatment of hypertensive disease is based on several only partially validated assumptions. It is conceived that the introduction of beta-hypophamine ("pitressin") depresses the secretion of the pituitary and that such depression may persist following withdrawal of the injected, additional hormone. There is, however, no assurance that such injections may not aggravate the situation. "Pitressin tannate" should not be employed in the presence of detectable coronary sclerosis, anginoid symptoms, retinitis, pregnancy or impaired renal function. These are definite contraindications. The indications are much more vague.

Radiation of the pituitary in hypertensive disease is not a new procedure. It was advocated by Hutton in 1934 (Hutton, J. H.: *Illinois M. J.* **66**:120 [Aug.] 1934) and since then has been periodically in vogue with a few clinicians. Rationale is based on an assumption whose validity is open to considerable doubt. Bioassay of pituitary pressor substance in either blood or urine is as yet not sufficiently sensitive to be satisfactory; the antidiuretic principle can be assayed, and it is assumed that *variations in the content of antidiuretic principle reflect parallel* variations of the pressor principle. It is notable that many patients with demonstrable hyperfunction of the posterior pituitary do not have hypertension; similarly, diabetes insipidus is not characteristically associated with either hypertension or hypotension. (Pendergrass, E. P.; Griffith, J. Q., Jr.; Padis, N., and Barden, R. P.: Indications for Irradiation of the Pituitary Gland in Patients with Arterial Hypertension, *Am. J. M. Sci.* **213**:192 [Feb.] 1947).

A fairly exhaustive search of recent literature indicates that there is no convincing confirmation of the clinical values of bioassays of the urine in hypertensive disease. It is extremely doubtful, in view of observations made in connection with diabetes insipidus as well as hypertensive disease, that excessive amounts of antidiuretic principle are common.

Rutin has definite value in diminishing capillary fragility, which is often increased in hypertensive disease because of the histanoxia due to reduced capillary flow distal to constricted arterioles. (Griffith, J. Q., Jr.: Increased Capillary Fragility in Hypertension, *Am. Heart J.* **28**:758 [Dec.] 1944). It is indicated only when testing reveals definitely a capillary fragility (Griffith, J. Q., Jr.: *Proc. Inst. Med. Chicago* **16**:434 [Oct.] 1947). The evaluation of clinical results with rutin is extremely unsatisfactory, because the major purpose is the prevention of capillary hemorrhage and therefore control studies are not feasible. Increased capillary fragility is not uncommon in states other than hypertensive disease: infection, fatigue, menstruation and allergic reactions (Brown, E. E.: Diseases Associated with Low Capillary Resistance, *Am. Heart J.* **34**:241 [Aug.] 1947). In cases in which extreme hypertension exists, or when the hypertensive presents coincident infection, allergic reactions or excessive fatigue, it should be useful in reducing the probability of capillary hemorrhage, particularly in the brain, retina or kidneys.

It should be emphasized that arterial hypertensive disease is a disorder with many etiologic factors and that the causative factors are not necessarily the same in any two cases. Control therapy, as well as curative or prophylactic therapy, must be based on individual etiologic analysis as far as possible. No one will discover a universal single cause for hypertension; there are always many contributing causative factors, not the least of which is hereditary vulnerability of the vascular structures. Treatment must be as individualized as etiology, and it must not be forgotten that with hypertension, as with most other disorders, it is much more important to treat the patient who has the disease rather than to treat the disease and ignore the patient.

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MEDICAL PROBLEMS OF THE MILITARY ESTABLISHMENT

MAJOR GENERAL MALCOLM C. GROW
THE AIR SURGEON
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From the War of 1812 until the present time, the wooden and later iron and steel walls of the British and American fleets have stood between our heart land and the aggrandizements or military threats of any potential enemy. Neither the Central Powers in World War I nor the Axis nations in World War II were able to breach these barriers or approach our continental installations and resources, wherein lie the bulk of our military potential. This unchallenged security, based on our position of relative geographic immunity, encircled and protected by a ring of steel, has perhaps engendered an attitude of domestic complacency, a complacency which may, for the first time, have been jolted a bit, simultaneously with the realization of the devastation wrought by the atomic bomb bursts at Hiroshima and Nagasaki at the conclusion of World War II. Just as the massed infantry assault tactics and tremendous personnel attrition of the early years of World War I were gradually replaced by the infiltration operations of the final campaigns, which represented the precursor of the type of action which characterized the early operations of World War II, so the air offensives and the atomic bomb which foretold the doom of Germany and Japan represented the fullest fruition of the alliance between scientific and military thinking, and simultaneously furnished us with a realistic pattern through the application of which we may anticipate the scope and magnitude of the first campaign in any subsequent war. The effective range of modern aircraft types are already surpassing the 1,600 mile action radius of the B-29, while currently planned aircraft, to be delivered in the not too distant future, will probably bring all of the inhabited areas of the earth within the striking range of the several major potential belligerents. No area and no city may then consider itself immune from the effects of atom bombing. Our seaboard cities are particularly vulnerable, since this new weapon of destruction may be delivered with equal effectiveness by a tramp steamer at dockside or from an aircraft flying overhead. Only one who has seen the ruins of the atom bombed cities of Japan and who has examined the casualty studies which were done there can begin to imagine the damage and loss which would be sustained if a dozen of our major ports were simultaneously attacked in this manner.

New methods of warfare demand new and better preparations for defense. Certainly the British, and afterward the Germans, in World War II, prepared themselves for the incendiary and explosive bombing which was expected to materialize as aircraft production expanded. Yet the British were hard put by the raids on London and Coventry and the German defense organization was overwhelmed by the concentrated weight of bombs which fell on the cities of the Ruhr valley, Berlin and especially Hamburg. We should have to multiply this destruction a hundred fold in order to approximate the magnitude of the disaster which would be associated with the detonation of an atomic bomb in New York, Washington or Chicago. Of course, many of those injured by radiation emanations could not be saved, since eventual, although not immediate, death is the inevitable consequence of a lethal dose of gamma particles; nevertheless, all living casualties must be screened in order that therapeusis may be concentrated on those irradiated persons whose prognosis is eventually favorable, or at the worst, doubtful. Furthermore, those persons receiving lethal doses of radiation would require palliative treatment and nursing care. I do not believe that the medical means to cope with such disasters could be organized on a voluntary basis. To underwrite the efficient utilization of the available doctors, nurses and medical supplies in the face of damaged transportation and communication systems would require definitive action on the part of a central civilian medical authority closely associated with a civilian defense organization, the latter

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Read in a Panel Discussion before the regular session of the Council on National Emergency Medical Service of the American Medical Association at Chicago, April 6, 1948 being empowered to mobilize and direct the entire civilian defense potential. Some assistance might be expected from the military. The Air Force in particular might furnish air evacuation and air transportation for medical supplies and personnel. However, it is necessary to assume that the National Defense Establishment, together with its medical military components, would be engaged in retaliatory action against the enemy to the limit of its capabilities, and consequently would be unable to render extensive direct support to the civilian population. To require more assistance from the armed services would weaken our offensive effort and so invite and encourage more extensive enemy action directed at the destruction of our resources, our industries and our will to resist.

Yet I do not propose that the medical services of the armed forces divorce themselves entirely from the civilian economy and permit our homeland to defend itself as best it can. Instead, there is one major contribution which the military medical service may make to the betterment of the civilian welfare in anticipation of such emergencies. Our contribution would consist of the application of a rigid economy in the employment of doctors and allied specialists. During World War II, approximately one third of all the doctors in the nation were utilized by the armed services to furnish medical care for approximately one tenth of the population. In a future war, the hazards associated with civilian existence may approximate those of soldier, sailor and airman. It is only reasonable, then, that the standard of our medical care, together with the aggregate of our medical resources, should be divided more equally between the civilian and military components. The risks to be incurred by services must be evaluated against the casualties which may be expected in the civilian population, and our medical means must be balanced on this comparison. The National Security Resources Board, established by Public Law 253, represents an agency wherein civilian and military leaders from the highest levels may explore and develop the medical requirements of the military and nonmilitary categories. It would be most desirable if a representative of the Council on Emergency Medical Service might be assigned to the Board to assist in the development of the civilian requirement for our medical resources and to insure participation of the American Medical Association in decisions which involve the health and welfare of the nation. The armed services may render no greater assistance to the National Security Resources Board and to medicine as a whole than through the practice of rigid economy in the authorization of medical officer assignments throughout the military structure. In general, I believe there are four methods through which the armed services may apply the principle of parsimony in the employment of doctors. These are:

ASSESSMENT OF REQUIREMENTS

First, the realistic assessment of medical officer requirements. Doctors were procured for the Army and the Air Force throughout World War II under the outmoded thesis that approximately six and a half physicians were required for each thousand troops serviced. This procurement objective was based on World War I experience, when large numbers of soldiers were employed on very limited ground fronts and bitterly contested each square foot of territory in a dogged war of attrition designed to destroy the manpower reserves of the enemy. Casualties were in consequence unprecedented, as were the demands on the medical services. World War II saw the evolution of a new military philosophy in which major efforts were directed at the destruction of the war-making potentials of the enemy, and particularly his industrial resources. Relatively fewer casualties were sustained when considered in the light of the scope of the actions involved. Had the effect of the strategic bombing of Japan been anticipated by the Medical Department of the Army, procurement of doctors against the casualty rates which were expected to characterize the invasion of Japan would have been unnecessary. Neither was enough cognizance had of the advancement of scientific methods in the practice of medicine. New biologic and chemotherapeutic drugs in combination with better immunization methods have reduced the incidence and simplified the treatment of a variety of medical conditions and illnesses which have previously been associated with the conduct of military operations in the field. At the same time, British experience in World War II indicates that adequate medical coverage can be afforded with the employment of a smaller ratio of medical officers. The procurement of medical officers in a subsequent emergency, if based on the actual medical requirement of the armed services rather than on an arbitrary ratio of six and a half doctors per thousand troops, would effect a most significant and obvious savings in the employment of physicians by the military establishment.

REPLACEMENT OF PROFESSIONAL OVERHEAD PERSONNEL

Second, the replacement of professional overhead by nonprofessional personnel. When the organizational pattern of the Medical Service is examined, it is apparent that a considerable number of medical officers are being employed in positions and are discharging responsibilities which are not directly concerned with the professional care of military personnel. This is particularly true at the higher staff levels and in the larger hospital installations. There are certain staff planning capacities in which the professional background is a necessary adjunct; however, a significant opportunity remains for the introduction of economy in the utilization of medical officers through the substitution of nonprofessional personnel for the doctors currently employed in hospital and other medical overhead administration. The rapid transportation of patients by air, where medical attendance by nurses and trained enlisted men suffices for the care en route because of the short duration of the evacuation interval, would render unnecessary the employment of large numbers of medical officers to staff the more slowly moving hospital trains and ships. At the same time, hospital manning tables may be evaluated in the light of the mission and actual capabilities of the unit with a resulting moderate saving in the professional categories.

DELAYED DEPLOYMENT

Third, the delayed deployment of the professional and specialist group. Throughout World War II, it was the custom to activate hospitals as complete units within the Zone of Interior for deployment to theaters of operations overseas. Once activated, the organization pursued a training program of several months' duration, in some instances with its authorized equipment, was shipped to a port of embarkation, processed there, transported overseas, disembarked, personnel and equipment assembled, perhaps retrained in the theater, again transported to its site of employment, set down and prepared to receive patients. Not infrequently a year elapsed between the departure of individual physicians from their native community and their readiness to utilize their training in the attendance of military patients. Yet all of this transitional and migratory activity on the part of the doctors can hardly be regarded as conducive to fostering their ability to provide medical care for the sick and wounded. This prodigal use of trained physicians could be corrected through the simple expedient of delaying the deployment of the professional groups. In practice, the system would operate in this fashion: With the announcement of mobilization, civilian physicians would be channeled through reception and classification centers where their background would be evaluated and their suitability for military duty determined. This processing would require no more than a week in the case of each individual physician, who would then return to his local community to continue in his practice, subject to subsequent call to duty. Meanwhile, the activation of hospital units and the assembly of their enlisted personnel and equipment would continue under the direction of nonprofessional military supervisors. The professional group would be assigned on paper prior to the departure of the unit for overseas, and not until then would the individual doctors be notified of the probable date of their commitment. The hospital would be shipped to the theater of operations with only a small fraction of its professional staff, the remainder of which would continue to remain in their local communities. On the arrival of the unit in the theater and on completion of its intratheater processing and transportation, the hospital would be erected at its site of employment by the nonprofessional echelon already assigned. Shortly before the anticipated date of the opening of the hospital, the theater commander would call on the Zone of Interior for the shipment of the professional staff, who would be transported to the theater by air or sea, arriving a few days prior to the actual opening of the hospital for the reception of its first increment of patients. The savings to be accomplished through the delayed deployment of the professional staffs and specialists in the case of hospital organizations are readily apparent.

IMPROVED EMPLOYMENT OF SPECIALISTS

Fourth, improved employment of the specialist categories. In the past, it has been the custom to distribute professional specialists among theaters of operations and the Zone of Interior in a manner which parallels the deployment of other medical officers, i.e., on the basis of troop strength in the area involved. In consequence, these persons were committed and assigned in anticipation of casualty and sickness workloads which frequently failed to materialize. Wastage of their professional skills and time were inevitably associated with the practice of identifying these persons as intrinsic components of specific theaters, regions or units. Such wastage could hardly be obviated without a major revision of operating procedures. Recognition of the specialist as a distinct entity in the organizational sense would correct this condition. Small teams or even individuals might be designated as reenforcements for regional or unit staffs, and shuttled within a theater, between theaters or between theaters and the Zone of Interior by air or other rapid transportation as the actual need for specialists developed. This plan, while not new, was never implemented because the creation of special groups not subject to the general policies with regard to the duration of the overseas tour is always opposed from the point of view of personnel administration and favoritism. However, if the shortage of the specialist categories is as serious as has been emphasized in certain quarters, it would appear that these considerations are of a magnitude sufficient to warrant the special handling which is proposed for this group.

If these economies which I have mentioned are accepted and implemented throughout the armed forces, or others of a similar nature, it is my belief that the services will never again be accused of wasting doctors, dentists or nurses in any subsequent emergency and will not be overstaffed with medical talent at the expense of the civilian population.

While I have discussed a number of the considerations bearing on medical service in the military establishment, I should prefer to make no recommendations with respect to the type of medical organization which should be associated with the civilian defense agency. It is apparent, though, that its successful operation would doubtlessly require a form of universal service applicable to the medical profession, a subject which would better remain in the capable hands of the American Medical Association and, specifically, the Council on Emergency Medical Service. The implications of such a compulsory system are staggering and even frightening, yet in the last analysis they are not so far removed from the selective service that we knew in World War II.

CONCLUSION

I should like to mention the activities of the Hawley Board in connection with the organization of the medical service in the National Defense Establishment. For some months the Board has been concerned with the development of a more efficient system for the medical care of our military components. I believe that substantial economies may be demonstrated through the application of the principles of joint and cross servicing in the fields of medical meteriel and personnel procurement, through the utilization of research and training facilities and through the elimination of duplicating hospital installations. At the same time, it is apparent to all that the efficient medical support of Army, Navy or Air Force in actual combat requires the close identification of the operating elements and components of the medical service with the command structure of the major force involved. The establishment of an Air Force medical service to provide the troop unit and station level medical attendance required by the Air Force and to participate jointly with the medical departments of the Army and Navy in the operation of the larger hospital installations and various medical overhead functions would be the logical corollary of this concept. Certainly the recommendations of the Hawley Board will embrace a number of revolutionary changes, all of which, I hope, will represent steps toward the creation of an efficient and attractive medical establishment within the armed forces which will reflect the fine tradition and ever superior standards of American medicine.

Second Era of Research in Chemotherapy.—During the past dozen years we have all witnessed the impact on medicine of what Sir Henry Dale has called the second era of research in chemotherapy, as manifested practically in the unparalleled usefulness of the sulfonamides, penicillin, and the newer antimicrobic drugs, and theoretically in the impetus which their discovery has given to new thought and experimentation on the metabolism of parasitic cells, the mechanisms of drugfastness, and the general principles of chemotherapy. Great as these achievements are, they were exceeded, in my opinion, by the attainments of bacteriology in the final quarter of the 19th century.—Kidd, John G., *Bulletin of the Johns Hopkins Hospital,* June 1948.

ROENTGEN DIAGNOSIS OF MYOCARDIAL INFARCTION

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The clinical diagnosis of major infarction resulting from coronary insufficiency or occlusion is usually reliable, especially when confirmed by the presence of suitable electrocardiographic changes, slight fever, leukocytosis and an increased sedimentation rate.[1] However, there are some cases in which the clinical diagnosis is in doubt and in which additional data are desirable or essential for confirmation. Such cases include those with (*a*) an indefinite or atypical history, with or without positive electrocardiographic findings, (*b*) a definite history but negative or inconclusive electrocardiographic findings and (*c*) no definite history but apparently positive electrocardiographic findings.

Infarction in the "acute" stage is essentially a problem for clinical diagnosis; the patient can rarely be moved for roentgen studies and the electrocardiogram is usually positive. Infarction in the healing or "healed" phase is often a problem for joint clinical and roentgen examination; the electrocardiogram has not infrequently reverted to normal or become nondiagnostic.[2] It has been estimated that about 18 per cent of patients with verified coronary occlusion have negative electrocardiographic findings, as such are ordinarily made and interpreted.[3] It is in this group particularly that kymographic examination may be of value.

In view of the fact that "coronary artery disease, with the possible exception of cancer, is now responsible for more fatalities than any other disease",[4] the vast import of infarction is apparent. That infarction is no respecter of age is illustrated by Newman's recent report of a series of 50 cases of

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This paper is based principally on cases seen at the United States Naval Hospital, Oakland, Calif., while the authors were attached thereto during the years 1944 to 1946. The opinions expressed are those of the writers and not to be considered as reflecting the views of the Navy Department. Dr. Garland is Associate Clinical Professor and Dr. Thomas is Clinical Instructor in Radiology, Stanford University Medical School.

[1] Blumgart, H.L.; Schlesinger, M.J., and Davis, D.: Studies on Relation of Clinical Manifestations of Angina Pectoris, Coronary Thrombosis, and Myocardial Infarction to Pathologic Findings, with Particular Reference to Significance of Collateral Circulation, Am. Heart J. 19:1-91 (Jan.) 1940.

[2] Selzer, A.: Recent Trends in Electrocardiography, Stanford M. Bull. 4:7-15 (Feb.) 1946.

[3] Dock, W.: Personal communication to the authors.

[4] Master, A.M., and Auerbach, O.: Acute Coronary Insufficiency, U.S.Nav.M.Bull. 47:226-237 (March-April) 1947.

coronary occlusion occurring in young robust adults under 36 years of age (all but one of them male); most of these cases showed extensive myocardial damage.[5] In this age group the kymographic method can be a most useful adjunct in diagnosis

METHOD

Roentgen examination of the heart for the determination of myocardial damage involves fluoroscopic and roentgenographic examination and, in some instances, roentgen cardiac kymography. The fluoroscopic detection of severe myocardial damage is not difficult, but is prone to the limitations of subjective impression and provides no record which may be reviewed at a later date or studied by others. Sosman, Levene and others have ably described the criteria for the fluoroscopic diagnosis of heart disease, and full information can be obtained from their publications. The silhouette is studied as to size, shape, position and motion. Areas of myocardial damage are suggested by localized abnormalities of curvature and motion (flattening and diminished excursion of the ventricular wall or, less commonly, bulging and paradoxic expansion).

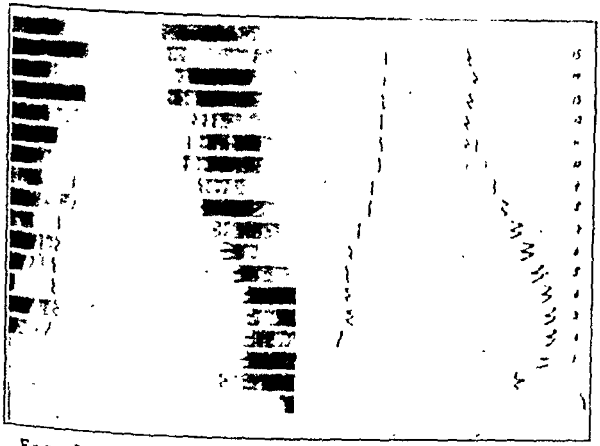

Fig. 1.—Roentgenkymogram of healthy adult 30, with tracing to illustrate the various types of waves normally present over the cardiovascular silhouette. The numbers refer to the individual "frames" above the left hemidiaphragm: 15 to 10 on left of tracing, pulsations of superior vena cava, 9 to 5, right auricle, and 4 to 3, right ventricle; 15 to 12 on right, descending aorta; 11 to 10, pulmonary artery; 9, ascending aorta, and 8 to 1, left ventricle. Posteroanterior view.

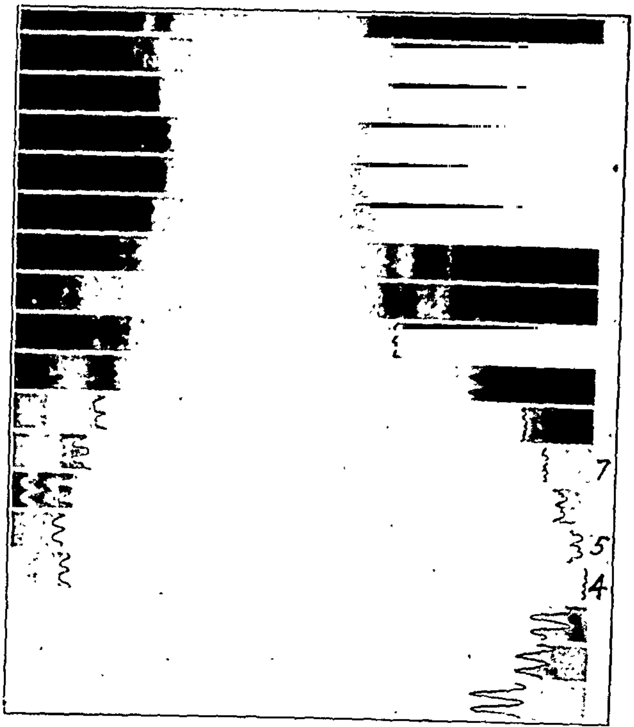

Fig. 2.—Posteroanterior kymogram of man aged 46. Note absence of normal waves in frame number 4 above the left hemidiaphragm ("silent" frame); and the reversed pattern in frames 5 to 7 ("paradoxic" motion). Roentgen diagnosis was myocardial damage, presumably infarction, involving the wall of the left ventricle. The patient was a physician with a clinical diagnosis of infarct, but questionable electrocardiogram. Autopsy verification three weeks later.

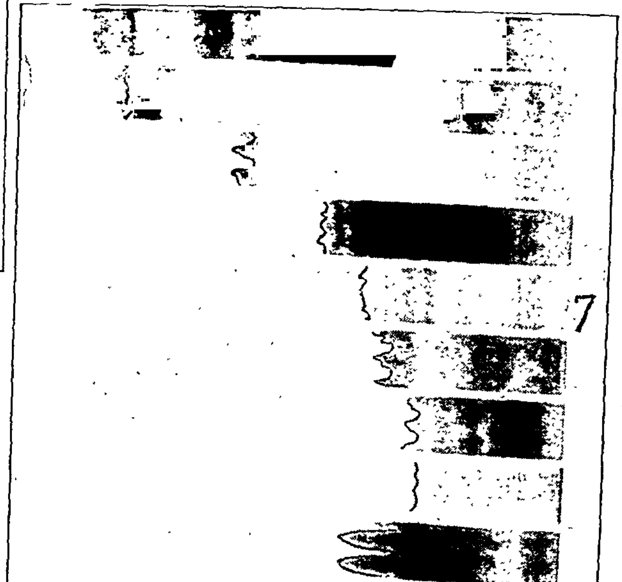

Fig. 3.—Same kymogram as in figure 2.

Cardiac kymography is usually performed with the multiple slit kymograph, using 12 to 1 grid ratio. Films are made in whatever projection is deemed most liable to demonstrate the involved area of myocardium, usually in the posteroanterior and left anterior oblique positions; occasionally in right anterior oblique (left anterior oblique, 65 degrees; right anterior oblique, 45 degrees). Technical factors vary with the patient's build and pulse rate; most cases are satisfactorily handled with these factors: 85 kilovolts, 100 milliamperes, 48 inch (121.9 cm.) target-film distance, one and one-half seconds' time, moderately deep inspiration. In questionable cases the film may be repeated, perhaps in a different phase of respiration, or with the slits turned to an angle other than the horizontal. Frames with diminished, absent or paradoxic ventricular waves are usually indicative of myocardial disease.

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[5] Newman, M.: Coronary Occlusion in Young Adults, Lancet 2:409-411 (Sept. 21) 1946.

ROENTGEN KYMOGRAPHY

Roentgen kymography is a method for recording the movements of an organ on a single film. There are several possible technics, but we will confine our remarks to multiple slit kymography at this time. The electrokymograph of Henny and Chamberlain[6] may offer aid in this problem, but to date its value in clinical work is still unpublished.

Multiple slit kymograms are records of one component of the movement of the organ under survey, the only motion accurately registered being that which occurs in a direction parallel to the slits. By turning the slits to various angles one may record the motion of different portions of the organ. For purposes of myocardial wall study, horizontal slit kymograms are usually adequate, since the majority of infarcts occur in those portions of the ventricles which are near the anterior interventricular groove. Even when not located near the left cardiac border, infarcts tend to cause variable degrees of "splinting," with restricted or irregular contractions of that border, and such abnormal contractions are usually detectable in routine posteroanterior kymograms.

The individual kymographic waves are examined as to amplitude, shape and timephase. The amplitude and shape of ventricular waves normally show wide variations, and therefore apparent alterations must be critically evaluated.[7] This applies especially to waves near the apex, where, owing to occasional predominance of vertical over horizontal contractions, motion may seem to be absent in healthy persons.[8] Timephase is best studied with the aid of calipers; the peak of a diastole or the valley of a systole may be measured from the base of the frame under review and that distance compared with other frames over the ventricular outline. Since the visible evidence of ventricular systole appears first at the base and progresses downward to the apex, the timing or phase of ventricular waves varies a very slight amount over the ventricular border.

If serial films are made for comparison, it is essential that they be made in identical phases of respiration, with similar time exposures and with smoothly moving films, since the shape and amplitude of the waves are profoundly influenced by variation in these factors.

The amplitude of ventricular wall movement is diminished in myocardial disease (including infarction, pronounced enlargement, hypothyroidism, thiamine deficiency, severe infections and cardiac neoplasm), and in certain pericardial disorders (effusion and adherent scars). A negative kymogram does not exclude the presence of an infarct. The most reliable positive kymographic sign of infarction is the presence of either paradoxic motion or an immobile area between two zones of normal motion. The most common signs are systolic expansion and absence of motion over the lower half of the left ventricular border. When limited to the apex, this should be confirmed by films made in other positions or in expiration or on succeeding days. Restricted movement at the apex alone may be due to physiologic variation in the direction of contractions.

Concerning identification of the probable area of infarction, Dack and others[9] offered the following comments relative to cardiac anatomy:

> The superficial muscle layers are attached to the auriculoventricular ring posteriorly, and wind around the left ventricular margin and apex to the anterior surface, where they are inserted in the papillary muscles. It is possible to speculate that infarction or scarring posteriorly will deprive the spirally arranged muscles of their posterior fulcrum, and therefore the portion of the muscle in the apical region or along the left ventricular contour gives way with each systole of the heart, and passively expands or remains stationary instead of contracting.

For this reason, perhaps, the area of "infarction" in the kymogram does not always coincide with the postmortem location of the infarct.

A "positive" kymogram may occasionally be found in patients with no clinical symptoms of myocardial infarction. This may be due to the presence of a silent infarct, or, occasionally, to unexplained physiologic variations in cardiac movements; myocardial tumors and localized adherent pericardial scars may cause similar changes. The differential diagnosis of extensive infarction from diffuse myofibrosis or muscle infiltration may be impossible on kymographic grounds alone. Generalized diminution of contractions and other changes may occur in all these conditions. However, localized infarction will usually show localized alterations (especially systolic expansion) which are relatively characteristic. Areas of infarction have been followed for periods of several months and seen to return to normal pulsation in some cases—which is plausible in view of clinicopathologic opinion that about 25 per cent of infarcts heal completely. Sussman[10] reported such change in 17 per cent of a group followed for two years. Penner and Peters[11] reported a case of proved ventricular aneurysm in a man of 43 who survived fifteen years!

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[6] Henny, G.C., and Boone, B.R.: Electrokymograph for Recording Heart Motion Utilizing the Roentgenoscope, Am. J. Roentgenol. 54:217-229 (Sept.) 1945.

[7] Thomas, S.F., and Garland, L.H.: Roentgen Cardiac Kymography, California Med., to be published.

[8] As part of an investigation of cardiac size and output in healthy persons conducted by Keys (Keys, A.; Friedell, H.L.; Garland, L.H.; Madrazo, M.F., and Rigler, L.G.: Roentgen Kymographic Evaluation of the Size and Functions of the Heart, Am. J. Roentgenol. 44:805-833 [Dec.] 1940) some years ago, one of us (L. H. G.) had the privilege of making a few hundred kymograms and seeing the analysis of several more, totaling in all about 500 persons. In approximately 5 of these cases silent or paradoxic frames were noted in some portion of the left ventricular area. These were never constant on recheck, and the amplitude of waves in adjacent frames was usually excellent (about 4 mm.). Nevertheless, their occurrence necessitates the observation that "pseudo infarcts" or inexplicable aberrations of motion do occur in about 1 per cent of healthy persons. The examinees' ages ranged from 13 to 36; most were about 22 years old and were college athletes!

[9] Dack, S.; Sussman, M.L., and Master, A.M.: Roentgenkymogram in Myocardial Infarction: Clinical and Electrocardiographic Correlation, Am. Heart J. 19:464-474 (April) 1940.

The location of the area of infarction does not always coincide with the area of abnormal motion seen in the kymogram. The infarct may be remote from the recorded segments but reveal itself by associated " splinting" of muscle contractions. Paradoxic movement does not require the presence of ventricular aneurysm: if one segment of the heart is immobile while the remainder of the ventricle contracts, that segment may show systolic expansion.

The probable age of the infarct cannot be determined from a single kymogram. The kymographic changes in cases of recent infarction are in general rather similar to those in cases of old infarction. A minority of cases of acute infarction will show (a) no immediate changes but changes developing after four to twelve weeks, or (b) immediate changes, with gradual improvement and return to normal after several months.[10]

In summary, the positive kymographic findings in myocardial infarction are (a) localized diminution or absence of pulsation, (b) systolic expansion or paradoxic pulsation, (c) partial systolic expansion or pronounced diastolic irregularities. Negative kymographic findings do not exclude the possibility of infarct but appear to occur in less than 30 per cent of cases. Positive roentgen findings are most frequent in cases of severe or extensive muscle damage.

INDICATIONS FOR ROENTGEN KYMOGRAPHY

The electrocardiograph is so far superior to the kymograph for the detection and confirmation of myocardial infarction that the question arises, "When should one employ roentgen kymography?" We believe that it is indicated when the clinical diagnosis is in doubt or the electrocardiographic findings are lacking or equivocal in a patient with symptoms of coronary disease or coronary insufficiency.[12] It may be useful in the prognosis of some atypical cases, since the degree of kymographic change or abnormality usually parallels the extent or severity of infarction. Furthermore, it has been shown that the kymogram is often more reliable in designating the severity of the infarct than is the electrocardiogram.[9] Therefore the kymogram has greater potential prognostic significance than the electrocardiogram.

RELIABILITY OF ROENTGENKYMOGRAPHIC DIAGNOSIS

In experienced hands, we believe that the method is reliable. Positive kymographic findings have been reported in as high as 91 per cent of a series of cases of proved myocardial infarction.[13] Sussman and others[10] reported positive findings in 75 per cent of 200 clinically definite cases of infarction. Others reported such findings in 71 per cent of cases.[14] In our own hands we have found positive findings in about 66 per cent of cases with clinically definite lesions. However, we have also encountered a few instances (we believe about 1 per cent of all cases examined) of inexplicably silent frames in healthy young persons. None of these could reasonably be attributed to localized infarction or adherent pericardial scar. Their explanation remains obscure, and their finding a reminder that no test is 100 per cent decisive. They may have been due to anomalous but physiologic pendulum or other movements.

CORRELATION OF KYMOGRAPHIC AND ELECTROCARDIOGRAPHIC FINDINGS

In this particular study roentgen kymograms were made in over 350 cases of various suspected or known cardiac disorders, ranging from mild functional disturbances to frank coronary disease; of these, 275 are available for review. For 249 of the patients satisfactory electrocardiographic tracings were made. To test the reliability of kymography it was decided to use the electrocardiogram as an accepted aid for the diagnosis of cardiac disorders and then to match the kymograms against that method. The majority of the electrocardiograms were made with a Cambridge "simplitol" instrument, standard limb leads and the 4 F being used. The interpretations were made by experienced cardiologists, most of them having been done by Dr. (then Lieut. Commander) Maurice Sokolow, who gave us advice and assistance.

For purposes of analysis, the actual reports as sent for the patient's charts were reviewed and classified as " positive," " negative" or " questionable." In the case of the electrocardiograms such conclusions as " left ventricular strain," " myocardial damage," and " coronary disease" were classified as positive; the phrase " tracing within normal limits" was recorded as negative; borderline interpretations were labeled questionable. Similarly, in the case of the roentgenologic reports, " myocardial abnormality" or " paradoxic motion" was classified as positive;

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[10] Sussman, M.L.; Dack, S., and Master A.M.: Roentgenkymogram in Myocardial Infarction: Abnormalities in Left Ventricular Contraction, Am. Heart J. 19:453-463 (April) 1940.

[11] Penner, S.L., and Peters, M.: Longevity with Ventricular Aneurysm, New England J. Med. 234:523-526 (April 18) 1946.

[12] Dack, Sussman and Master.[9] Garland, L.H.: Myocardial Infarction: Roentgen Diagnosis, U.S. Nav. M. Bull. 45:89-96 (July) 1945.

[13] Gubner, R.; Crawford, J.H.; Smith, W.A., and Ungerleider, H.E.: Roentgenkymography of Heart: Its Clinical Applications and Limitations, Am. Heart J. 18:729-746 (Dec.) 1939.

[14] Master, A.M.; Gubner, R.; Dack S., and Jaffe, H.L.: Form of Ventricular Contraction in Cardiac Infarction: Fluoroscopic Studies, Proc. Soc. Exper. Biol. & Med. 41:89-94 (May) 1939.

apparently normal reports as negative and indecisive reports as questionable. We realize that more specific designation of the electrocardiographic patterns might be desired by cardiologic readers, but space does not permit such excursion herein. The interpreters were experienced cardiologists and their conclusions were used as a base line.

The two methods correlated in 201 cases (80.5 per cent), and failed to do so in 48 (19.5 per cent). Analysis of the latter disclosed that failures were made in a "positive kymographic and negative electrocardiographic" fashion and vice versa fourteen times, thus leaving 34 cases in which there was no adequate explanation. However, in this group of 34 cases, it was found that 28 had questionable elements in the interpretation of the electrocardiographic tracing or the kymographic film (table 1).

TABLE 1.—*Correlation of Kymograms and Electrocardiograms in the Diagnosis of Myocardial Disease (249 Cases)**

Kymogram	Electrocardiogram	Cases	Percentage
Positive	Positive	28	11.3
Negative	Negative	146	58.4
Questionable	Questionable	27	10.8
Total Correlated		201	80.5
Kymogram	Electrocardiogram	Cases	Percentage
Negative	Positive	8	3.3
Positive	Negative	12	4.8
Positive	Questionable	3	1.3
Questionable	Positive	5	2.0
Questionable	Negative	8	3.3
Negative	Questionable	12	4.8
Total Failure of Correlation		48	19.5

*The kymograms were made within three to five days of the electrocardiograms in the vast majority of instances. The cases included miscellaneous types of cardiac disease or disorder, not exclusively infarctions. The designation of various electrocardiographic and roentgen patterns as positive or negative is explained in the text.

TABLE 2.—*Correlation of Kymograms and Electrocardiograms in Diagnosis of Myocardial Infarctions (58 Cases)*

Kymogram	Electrocardiogram	Cases
Positive	Positive	19
Negative	Negative	5
Questionable	Questionable	9
Correlation		33 = 56.8%
Kymogram	Electrocardiogram	Cases
Negative	Positive	4
Positive	Negative	10
Positive	Questionable	3
Questionable	Positive	3
Questionable	Negative	3
Negative	Questionable	2
Failure of Correlation		25 = 43.2%

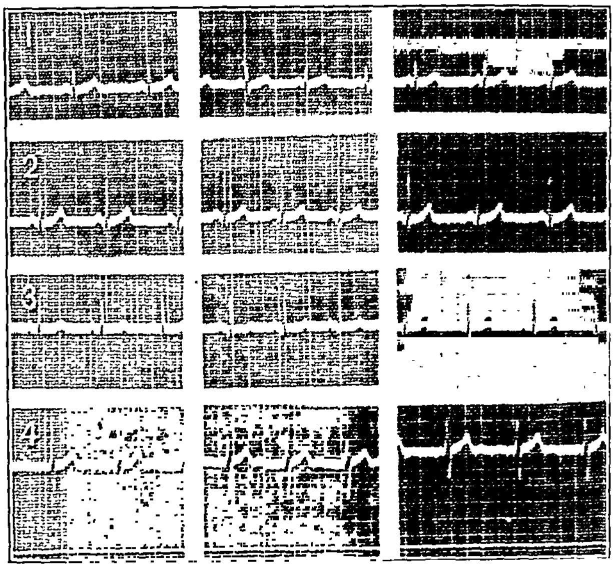

Fig. 4.—Example of negative electrocardiogram in myocardial infarction. Three sets of electrocardiograms made on different dates (from left to right, Dec. 30, 1944 and Jan. 1 and Jan. 3, 1945) were all reported by the cardiologist as within normal limits; normal series rhythm; rate 74 to 93; P-R 0.13 to 0.12; QRS 0.08 to 0.07 second. The roentgenkymogram (fig. 5) was indicative of severe myocardial abnormality. The clinical diagnosis was coronary occlusion with infarction.

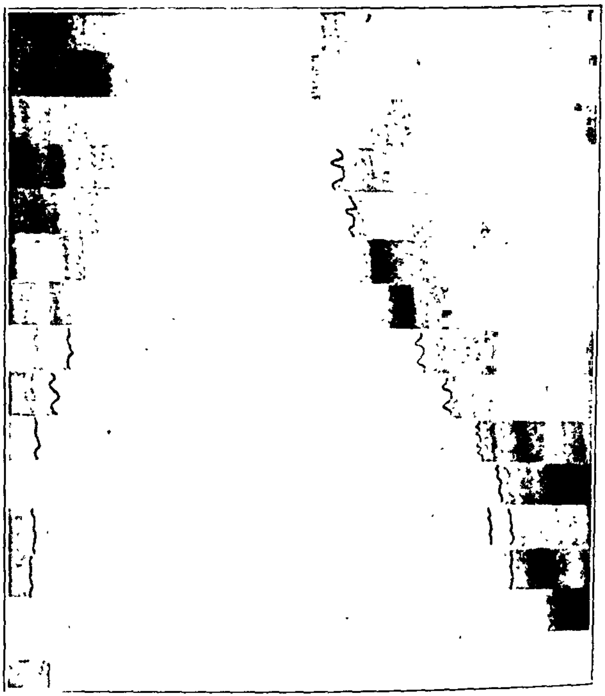

Fig. 5.—Posteroanterior kymogram of man aged 36. Note the poor amplitude of the waves over the entire left side of the heart and over the lower half of the right. These findings were also present in both the left anterior oblique and the right anterior oblique projections. Roentgen diagnosis was myocardial disease, severe, probably infarction. Clinically the patient had substernal pain and dyspnea, but his electrocardiogram was negative (fig. 4). He was allowed to go on leave. After he had sprinted to catch a train his attacks recurred. The electrocardiographic findings then showed changes indicative of myocardial disease. Final clinical diagnosis was coronary occlusion with infarction.

Therefore, the actual aid that either one of these tests might be to the other is greater than the figures suggest. In other words, when one of these tests was positive and the other questionable, one acted to confirm the other. Conversely, when one was negative and the other questionable, it was more likely that the negative result was correct. This might be expressed as an equation (K being used for kymograph and E for electrocardiogram):

E (or K) Positive + K (or E) Questionable = Probable infarct
E (or K) Negative + K (or E) Questionable = Probably no infarct

If this is conceded, we resolve 28 of the cases in which there was failure of correlation of the two methods. The other 20 cases cannot be adequately explained in the light of our present knowledge. However, even if there were no adequate explanation for these, it is evident that the over-all result would be an error of less than 10 per cent, which in clinical work must be regarded as indicating a relatively reliable method of examination.

KYMOGRAPHIC FINDINGS IN CASES WITH INFARCTION

In 58 cases with a clinical diagnosis of infarction positive or probable kymographic changes were noted in 47 (or 81 per cent). In 10 of these 58 cases the electrocardiogram was negative when the kymogram was positive. It was in this small group that the method proved of real diagnostic and sometimes of decisive value. We say " sometimes" because of the fact that although electrocardiograms were negative in all 10, the clinical history or associated findings were so clearcut as to be diagnostic in at least 5 of them.

REPORTS OF CASES

The following cases are illustrative of the findings noted in this group:

CASE 1.—A white man, aged 48, had a clinical diagnosis of coronary occlusion. The electrocardiogram was reported as questionable. Kymograms were positive for extensive myocardial abnormality, presumably infarction of the left ventricle. (Figs. 2 and 3). This patient, a physician, had precordial distress on effort for about four weeks and paroxysms of tachycardia. Roentgenoscopy disclosed a moderately enlarged heart, with localized bulging of the midportion of the left lateral border and systolic expansion (ventricular aneurysm). A subsequent electrocardiogram was reported as " intraventricular conduction defect with changes indicative of infarction." He died nine days after entry. Autopsy disclosed that the lateral wall of the left ventricle was soft and mushy, with adherent thrombus, secondary to old myocardial infarct.

CASE 2.—A white man, aged 36, had a clinical diagnosis of possible myocardial disease (substernal pain and dyspnea being the complaint on admission. Electrocardiograms were repeatedly negative (fig. 4). Kymograms were positive for myocardial abnormality (fig. 5). Repeat kymograms confirmed the presence of waves of poor amplitude, with one area of splintering and one area suggestive of parodoxic movement in the third frame above the left leaf of the diaphragm. On this basis, a roentgenkymographic diagnosis of myocardial infarct was made.

However, because of the slim clinical and negative electrocardiographic findings, the patient was allowed to go on convalescent leave and returned to his home in New York. While running to catch the train for his return trip, he suffered a severe stabbing pain in the anterior part of his chest which lasted for almost an hour; he had at least

Fig. 6.—Posteroanterior kymogram of man aged 65. Note the shallow or paradoxic pulsations over most of the left ventricular border due to myocardial infarction. The electrocardiogram was negative at time of this roentgenkymographic study. There was verification at autopsy three weeks later (old and recent left ventricular wall infarcts).

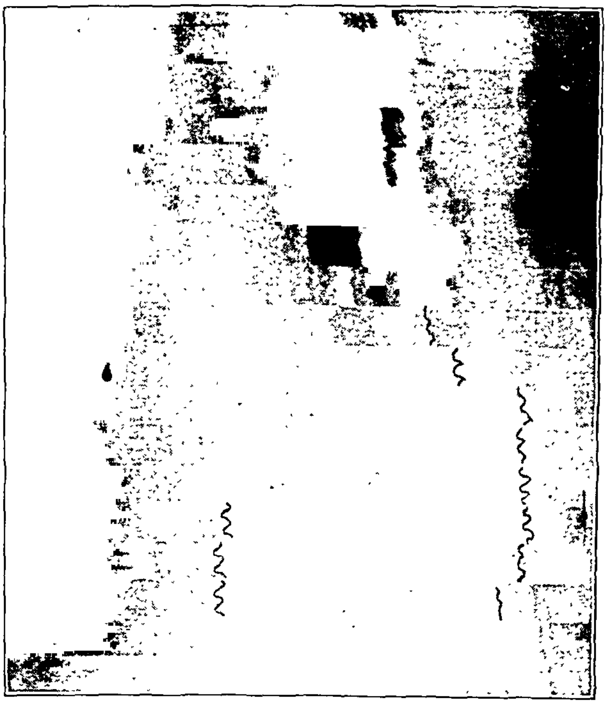

Fig. 7.—Left anterior oblique kymogram of same patient as in figure 6.

two similar attacks during the journey. Subsequent electrocardiograms showed progressive changes. The final clinical diagnosis was myocardial infarction.

CASE 3.--A white man, aged 65, with clinical diagnosis of arteriosclerotic heart disease had had recent attacks of nocturnal pain in the chest and dyspnea. Electrocardiograms showed evidence of "chronic ventricular strain." Kymograms were positive for myocardial damage (figs. 6 and 7). Subsequent electrocardiograms repeatedly showed evidence of "chronic coronary insufficiency, without evidence of recent infarction."

The patient was discharged home, but returned after some weeks with pulmonary edema. He died shortly thereafter. Autopsy revealed recent and old coronary thromboses and extensive infarction of the left ventricular wall.

CASE 4.--A white man, aged 48 had a clinical diagnosis of angina pectoris. Electrocardiograms were repeatedly negative. Kymograms were positive for severe myocardial disorder, presumably infarction (fig. 8). The clinical diagnosis was reconsidered following observation that the distress was epigastric in location, unrelieved by glyceryl trinitrate, amyl nitrite or medicinal doses of alcohol, but immediately relieved by sodium bicarbonate and eructation. Roentgen studies of the gallbladder and gastrointestinal tract gave negative results. He gradually resumed exercise, could walk on level ground without distress and after four weeks was anxious to return to his light duties as a training school supervisor. He felt so well that, in view of the negative electrocardiographic findings, the clinician doubted that he had any significant myocardial lesion.

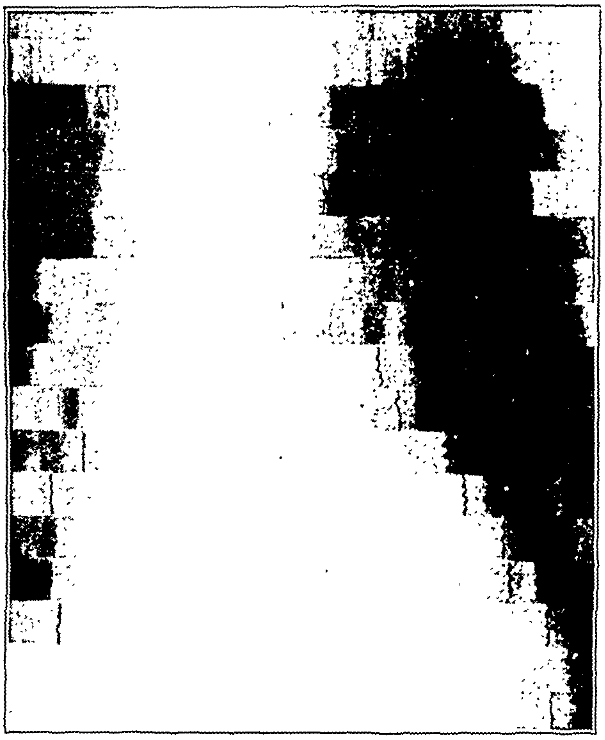

Fig. 8.—Posteroanterior kymogram of man aged 48. Note the poor amplitude of waves over most of the left ventricular border, with reversed pulsation in frames 3 to 5 above the left hemidiaphragm (infarction). The electrocardiogram was negative. The clinical history was questionable. Patient was released from hospital for ambulatory convalescence at home. Acute substernal pain developed within twenty-four hours of his departure from the hospital. Autopsy next day disclosed acute and recent infarction.

Repetition of the kymograms five weeks after entry confirmed the presence of "waves of poor amplitude over portion of the left ventricular margin, consistent with localized infarction." A repeat electrocardiogram next day showed some change, principally in the fourth precordial lead, which now revealed slight depression of the ST segment and inversion of the T wave. Until this second electrocardiogram became available, the only direct evidence of myocardial infarction was the kymographic. Indeed, the patient's second referral note to the radiologist read "Please repeat the kymographic study. The cardiac diagnosis hinges entirely on your findings."

The patient continued feeling well and was allowed to leave the hospital to subsist at his nearby home, pending completion of a discharge under the diagnosis of angina pectoris. On the evening after his departure he was awakened at 10 p. m. with severe epigastric pain; he took glyceryl trinitrate without relief and then sodium bicarbonate with some relief. He slept again until about 1 a. m., when he awoke with exquisite pain in the chest, went into shock, became pulseless and died in less than an hour.

Autopsy on the following day disclosed patchy coronary sclerosis, with thrombosis of the interventricular branch of the left coronary artery as its origin. There was extensive fresh infarction of the lower part of the interventricular septum and portion of the anterior wall of the left ventricle. There was older scarring of the posterior surfaces of the right ventricle near the apex.

SUMMARY AND CONCLUSIONS

The roentgen kymographic criteria suggestive or indicative of myocardial infarction are outlined. It is shown that roentgenkymography is a useful adjunct in the diagnosis of myocardial infarction, especially of "subacute" "healed" infarcts (particularly in cases with equivocal or negative electrocardiographic findings). It permits a permanent record of ventricular contractions. Ten cases are reported in which the kymographic findings led to a correct diagnosis of infarction, despite negative electrocardiographic or indefinite clinical findings. These constituted approximately 17 per cent of the cases of myocardial infarction studied in this series. The correlation of roentgenkymographic and electrocardiographic findings in the entire group of 249 cases with miscellaneous types of cardiac disorders was 80.5 per cent.

ABSTRACT OF DISCUSSION

DR. PHILIP J. HODES, Philadelphia: Drs. Garland and Thomas have reemphasized the importance of kymography in the diagnosis of myocardial infarction. They stressed the significance of paradoxic cardiac pulsations and splinting of the cardiac silhouette in this condition. They reminded us that negative kymograms do not exclude the presence of myocardial infarcts. Conversely, recognizing the pitfalls inherent in the method, the authors reviewed the false positive kymograms produced by normal vertical contractions of the heart near its apex as well as the abnormal contractions occasionally seen in systemic disease or cardiac diseases of other than vascular orgin. Whereas the authors did not discuss posterior cardiac infarcts specifically, I am sure that they appreciate the limited value of kymography in these lesions. This is due to the fact that the left ventricle, lying low on the left hemidiaphragm, is seen with difficulty in the lateral view, where it is obscured by the higher lying right hemidiaphragm and the liver, which makes it difficult to record changes in the posterior portion of the left ventricle kymographically. Much more easily found are the anterior, anterolateral and lateral lesions. No one can question the importance of kymography for the patients whose records have just been called to our attention. The authors were faced with a group of persons suspected of having cardiac disease but in whom the diagnosis was not established until Drs. Garland and Thomas submitted their kymographic data. There is evidence, however, that had four or more electrocardiographic precordial leads been used by the cardiologist instead of the one precordial 4 F lead utilized, the diagnosis might have been made in these patients by the cardiologist without kymography. All the more credit is due the authors, as well as kymography, because both were put to the test and met the challenge successfully. No discussion of this subject would be complete without reference to the electrokymograph recently discovered by the Chamberlain group of the Temple Medical School, which includes Dr. George Henny and Dr. Boone. It is hoped that their method of amplification and the other amplifying methods that stem from their original work will eventually make the diagnosis of myocardial infarction more easy and reliable.

DR. W. EDWARD CHAMBERLAIN, Philadelphia: I have recently had a pleasant surprise in that my expectations in regard to the electrokymograph have not been fulfilled in the direction that I expected. I had thought that I would be able to get along without roentgenkymography after the advent of electrokymography. After all, roentgenkymography is to electrokymography as big letters on a blackboard are to rather fine print. So it was with some surprise and some satisfaction, in view of the beautiful work done in roentgenkymography and the literature, added to today by Dr. Garland, that I find roentgenkymography is here to stay. I think that electrokymography will increase the value of roentgenkymography because it gives one many points on the heart boards. I am using roentgenkymography more than ever before. I should like to ask Dr. Garland if he would reduce the percentage of agreement to 70 per cent from the 80.5 per cent he gave, simply because I do not like to see in the 80.5 per cent of agreement the 10.5 per cent in which kymography was questionable. I would believe the real percentage would be 70 per cent, and that would be much closer to what we have obtained on myocardial infarction as we find it with the kymograph.

DR. L. HENRY GARLAND, San Francisco: In reply to Dr. Hodes' kind discussion, I cannot agree completely with him. Often one gets a positive kymograph because of "splinting." I do agree that infarction should not be excluded without multiple projections, and conversely that an attempt should be made to confirm kymographic findings with the electrocardiograph. In reply to Dr. Chamberlain's suggestion concerning reduction of the percentage agreement, I wish to point out that Dr. Thomas consulted Professor Weymouth of Stanford University and received his assurance that the figures given were valid and significant. Some of the cases which best illustrated the value of kymography were those with no clinical evidence of infarction, but with kymographic and autopsy proof of such. However, I do not wish to insist on verification at autopsy, since it is known that myocardial ischemia may result from coronary disease and sometimes give clinical and electrocardiographic evidence of infarction without postmortem demonstration of such.

ACTINOMYCOSIS OF THE CENTRAL NERVOUS SYSTEM

A Case of Meningitis with Recovery

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and
RALPH B. CLOWARD, M.D.
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The invasion of the central nervous system by the mold Actinomyces is rare. Ford[1] stated in 1937, "There are now 40 cases on record in which the nervous system has been invaded by the ray fungus. All reported cases have been fatal; no treatment is of any value." Friedman and Levy[2] after an extensive review of the literature found that 108 cases had been reported. Two more cases of actinomycotic meningitis have been added to the literature since this report[3] (1941). When the disease attacks the central nervous system, it is universally considered to be 100 per cent fatal. No case of recovery has as yet been reported.

Actinomycosis occurs in the central nervous system usually as a direct extension of an infection about the head; i. e., the upper jaw, the sphenoid sinuses or the mastoid. The nasopharynx has been suspected as a possible source of the original infection.

The organisms, however, can be transmitted through the blood stream. "Primary" infections in the brain are those in which no other lesion can be found outside the central nervous system. Twenty-three such cases were found by Friedman and Levy. Zeitlin and Lichtenstein[4] (1937) reported a case of brain abscess due to actinomycosis. They found a microscopic focus of infection in the body which they thought was primary. Most authors believe that the "primary" cases are those in which the original focus has either healed or has not been discovered.

LITERATURE

The literature on actinomycosis of the central nervous system can be divided into the reports published prior to the advent of chemotherapy (1937) and those appearing since. The most complete report by Friedman and Levy[2] (1936) reviews the entire medical literature on the subject up to that time. One hundred and eight cases were found, and 90 of these are briefly summarized by the authors. The average case shows thick pus in the spinal fluid with high cell counts, predominantly polymorphonuclear leukocytes; sugar is absent. The temperatures range from 101 to 102 F. The patients do not appear as toxic as would be expected from the abnormalities noted in the spinal fluid. There is usually paralysis of several cranial nerves. The white blood cell count ranges from 17,000 to 25,000. Sudden, unexpected death in a patient who seems not too acutely ill is characteristic of the disease.

Clinical Director of the Territorial Hospital (for the Mentally Ill), Kaneohe, Oahu, Territory of Hawaii (Dr. Jacobson) and Neurosurgeon, The Queen's Hospital, Honolulu, Territory of Hawaii; Consultant, Neurology and Neurosurgery, The Territorial Hospital, Kaneohe, Oahu, Territory of Hawaii (Dr. Cloward).

[1] Ford, F. R.: Diseases of the Nervous System in Infancy, Childhood and Adolescence, Springfield, Ill., Charles C Thomas, Publisher, 1937.

[2] Friedman, E. D., and Levy, H. H.: Actinomycotic Infection of Central Nervous System: Report of Case and Review of Literature, Internat. Clin. **2**: 36-61 (June) 1937.

[3] Eckhoff, N. L.: Actinomycosis of Central Nervous System; Report of Two Cases, Lancet **1**: 7-8 (Jan. 4) 1941.

[4] Zeitlin, H., and Lichtenstein, B. W.: Actinomycosis Abscess of the Brain, Arch. Path. **23**: 58-66 (Jan.) 1937.

Friedman and Levy concluded their article by stating, "There is no treatment for the disease; all cases are fatal."

The following year (1937) the first case of systemic actinomycosis to be treated with the sulfonamide drugs was reported. Poulton[5] described a patient with actinomycosis of the abdominal wall who recovered with the use of sulfanilamide after all other methods of treatment had failed. A similar case was recorded by Miller and Fell[6] in 1939 Sudler and Johnson[7] reported 2 cases of cervicofacial involvement cured with sulfanilamide. Other cures of abdominal actinomycosis with the sulfonamide compounds were reported by Ogilvie[8] (1940) and Dorling and Eckhoff[9] (1940) The latter authors treated 5 patients with sulfanilamide and sulfapyradine with 4 recoveries and 1 death. They recommended giving two or three "courses" of treatment, each course consisting of 45 Gm. of sulfonamide drug, lasting one week, with a one week rest period between. They stressed the frequency of recurrence of the disease and the danger of regarding a remission as a cure.

Dobson and Cutting[10] (1945) reported the use of penicillin as well as sulfonamide compounds in treating 16 patients with actinomycosis. The disease was pulmonary in 3 patients, abdominal in 2 and cervicofacial in 11. In 7 of these patients the disease was considered arrested; 7 recovered and 2 died after intensive sulfadiazine and penicillin therapy. Penicillin was used alone and in combination with sulfadiazine. The authors concluded that both drugs are highly effective in the treatment of actinomycotic infection.

A recent report by Lamb, Lane and Jones[11] (1947) recognizes the value of the chemotherapeutic agents, but these authors were not as enthusiastic about the specific value of these agents as stressed by previous authors.

The last report of actinomycosis of the central nervous system was recorded by Eckhoff.[3] His 2 patients with basal meningitis both died after many months of illness.

It is the purpose of this communication to record the first case, as far as we are able to determine, of verified actinomycotic meningitis in which complete recovery followed adequate treatment with chemotherapy

REPORT OF CASE

A. B., an unmarried Japanese woman aged 28, was committed to the Territorial Hospital on March 22, 1947 with a diagnosis of manic depressive psychosis, manic type, "with atypical features of hysteria and at times schizophrenia."

The psychiatric history suggested a psychopathic heredity. One maternal aunt and one cousin had committed suicide. The patient had been raised in an environment of sexual promiscuity with the practice of prostitution by her mother and sister to a limited degree. The patient, at the age of 14, had worked in a teahouse where she was frequently subjected to the advances of men, but she insisted that she had repulsed them. The symptoms of her present mental illness had begun eighteen months before, when she became deeply concerned over her approaching marriage. In December 1946 she became overtalkative, distractible, sleepless and hyperactive. On admission to the Mental Hygiene Clinic of The Queen's Hospital for treatment, she was belligerent, resistive, combative and hyperactive. After ten electric shock treatments she improved, and treatment was continued in the outpatient department. In March 1947 she again became disturbed, and after showing no improvement from the treatment she was committed to the institution.

On admission to the Territorial Hospital, she exhibited much the same hyperactive, restless, resistive behavior with marked hysterical symptoms. She had numerous somatic complaints of headache, backache, pains in the neck and astasia abasia. She would fling herself to the floor saying that she could not stand or walk.

The physical examination revealed no significant abnormality. The only positive finding was a palpable mass about 1 cm. in diameter at the anterior border of the sternomastoid muscle at its midpoint. It was thought to be a lymph node. The patient stated that two years before this "lump" had appeared in her neck. It had been considerably larger and rather painful She had had pains in the neck and occiput for which several physicians had been consulted, none of whom had considered the "lump" as being pathologic. She had been told that nothing was wrong. It could not be distinguished from a nonspecific lymphoadenopathy. (In the light of later developments, the possibility that this lesion represented the primary focus of the actinomycotic infection must be considered.) No biopsy of the node was made.

The neurologic examination was entirely normal. The fundus showed flat optic disks. No abnormalities of the lungs were found in the roentgenograms of the chest. Blood cell count and the urine were likewise normal. The examination of the spinal fluid on admission showed no cells, a negative Wassermann reaction and flat mastic curve with a total protein of 19 mg. per hundred cubic centimeters.

While in the hospital, except for the psychotic behavior which improved somewhat, the patient was physically well until May 8, 1947, when a temperature of 101 F. developed. She began to complain of backache and pains in her neck, more bitterly than her previous hysterical complaints. Examination disclosed positive Kernig and Brudzinski signs with tenderness and resistance to passive movement of the cervical muscles. The clinical diagnosis of meningitis was verified by lumbar puncture. The abnormalities noted in the spinal fluid were most surprising in view of the mild clinical symptoms. The spinal fluid was cloudy and contained 4,790 cells per cubic millimeter, 83 per cent of which were polymorphonuclear leukocytes. There was no sugar and a positive globulin reaction. The white blood cell count was 25,050. No organisms could be seen on direct smear of the spinal fluid.

She was immediately placed on penicillin, given intramuscularly, intravenously and intrathecally, and was given sulfadiazine by mouth. During the first week she received 45 Gm. of sulfadiazine and 2,500,000 units of penicillin—50,000 units, well diluted, were given daily intrathecally. Routine bacteriologic studies of the spinal fluid in the hospital laboratory had failed to disclose the organism, and a tentative diagnosis of tuberculous meningitis was considered. However, because of the high cell count, mostly polymorphonuclear leukocytes, further bacteriologic examinations were indicated. Accordingly, the spinal fluid was sent to the bacteriologic laboratory of the Territorial Board of Health, under the direction of Dr. Richard K. C. Lee, for further study.

The patient's clinical condition showed no improvement the first week. Regardless of chemotherapy the spinal fluid cell count rose from 4,000 to 7,000. Streptomycin was then added to the treatment. It was administered both intramuscularly and intrathecally. A total of 26 Gm. was given in six days. At one time all three chemotherapeutic agents were being administered simultaneously.

A bacteriologic report that the spinal fluid contained Actinomyces was received on May 15, 1947 The neurologic examination on that day disclosed 4 to 5 D of papilledema bilaterally, and weakness of both lateral rectus muscles Other cranial nerves were normal. The neck was stiff There was generalized muscular weakness and suggestive localized weakness of the left extremities. All tendon reflexes were absent; there were no pathologic reflexes. The patient's temperature remained between 101 and 104 F. daily. She was conscious and cooperative but listless and appeared toxic The possibility of a brain abscess was suggested. A ventriculogram was done on May 16, 1947.

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[5] Poulton, E. P, cited by Dorling and Eckhoff[9]

[6] Miller, E. M., and Fell, E. H.: Sulfanilamide Therapy in Actinomycosis, J. A. M A **112**: 731 (Feb. 25) 1939.

[7] Sudler, M. T, and Johnson, C. B.: Treatment of Actinomycosis with Sulfanilamide. Report of Two Cases, J. Kansas M Soc. **40**: 330 (Aug.) 1939.

[8] Ogilvie, W. H.: Abdominal Actinomycosis Treated with Sulphapyradine, Brit. M J **2**: 254-255 (Aug. 24) 1940.

[9] Dorling, G. C., and Eckoff, N. L.: Chemotherapy of Abdominal Actinomycosis, Lancet **2**: 707-709 (Dec 7) 1940.

[10] Dobson, L., and Cutting, W. C.: Penicillin and Sulfonamides in Therapy of Actinomycosis: Report of Sixteen Additional Cases and in Vitro Tests of Susceptibility of Lectinomyces to Penicillin and Sulfadiazine. J A. M. A. **128**: 856-863 (July 21) 1945.

[11] Lamb, J. H.; Lane, E. S., and Jones, P. E.: Actinomycosis of Face and Neck, J. A. M. A. **134**: 351-360 (May 24) 1947.

Through a single burr hole in the right frontal bone, the anterior horn of the ventricle was tapped with a brain needle, replaced by a no. 12 rubber catheter, which was sutured to the scalp and left in place. The brain was tight and bulged markedly through the small dural opening The ventricular fluid, released under considerable pressure, was cloudy and contained 1,300 cells. Twenty cubic centimeters of fluid was removed from the ventricular system and replaced with oxygen The lateral ventricles as seen in the roentgenogram were small, equal in size and shape and situated in the midline. The roentgen diagnosis was cerebral edema without brain abscess

The ventricular catheter was opened and the ventricular fluid allowed to drain through it continuously for twelve days, relieving the intracranial pressure. Large doses of penicillin were continued intravenously during the first six days and replaced by sulfadiazine the second six days. The spinal fluid began to show *improvement after the ventricular drainage* was established. On May 22 there were 1,500 cells The sugar appeared for the first time with 36 mg. per hundred cubic centimeters, and the cultures, which up to this time had all contained Actinomyces, were sterile.

The patient improved steadily; the septic temperature curve, which had remained above 101 F. for five weeks, gradually returned to normal. Sulfadiazine alone was continued the last three weeks, 45 Gm. being given weekly.

On June 5 she was *considered clinically* well. The spinal fluid was clear, the cell count 33, the sugar 92 mg. per hundred cubic centimeters, the total protein 35 mg. per hundred cubic centimeters and the mastic curve 34555. She was discharged from the hospital completely recovered from her mental illness as well as the meningitis and has remained well to the present time (Nov. 1, 1947).

COMMENT

The manner in which the chemotherapy was administered in this patient from the onset and throughout her illness may be criticized but, in the light of our present knowledge that we were treating a 100 per cent fatal disease, the intensive chemotherapy appears justified. Intensive treatment with sulfadiazine, penicillin and streptomycin was administered singly and in combinations, by every possible route. One cannot, therefore, state which drug was largely responsible for effecting the cure. Perhaps, the combination of two or more may have been more effective than any one alone. It would seem that the streptomycin had therapeutic value, because clinically the patient began to improve and the spinal fluid cell count began to drop after the streptomycin was started. The continuous ventricular drainage was started at about the same time. It is difficult to evaluate the efficacy of this procedure as far as the infection, per se, is concerned. It did relieve the intracranial pressure. The papilledema subsided rapidly after the ventricular drainage.

The relation of the mental illness to the infection must be considered. The mental symptoms began one and one-half years before, coincident with the appearance of the "lump" in her neck. Whether this represented a "metastasis" to the central nervous system is entirely speculative. A dormant abscess of the frontal lobe subsequently rupturing into the subarachnoid space might explain the relationship between the psychosis and the meningitis, but this too is conjectural. The patient's psychosis, however, completely cleared up as she recovered from the meningitis.

BACTERIOLOGIC REPORT

Since actinomycosis of the central nervous system is rarely diagnosed during life, it is appropriate that the complete bacteriological examination of this case be included. The following report signed by Dr. Richard K. C. Lee, Assistant Health Executive of the Board of Health, Territory of Hawaii, is given in its entirety.

The appearance of these spinal fluids was consistently the same, mainly cloudy with pieces of fibrous material resembling a pellicle. A wet preparation of a portion of the pellicle, examined under the microscope, revealed a few red blood cells and a large number of white blood cells, predominantly the polymorphonuclear type in each instance. Yeastlike forms were absent. Gram's and acid-fast stains of the centrifuged specimens failed to show any bacteria.

In all the specimens the same procedure of culture technic was followed. The sediment was planted on the following mediums: Petragnani's, chocolate agar incubated at 37 C. in approximately 10 per cent carbon dioxide atmosphere and sodium thioglycollate. The results obtained by culture media are as follows: 1. Blood agar plate (first and second specimens only: No growth was present after a period of one week. *The plates were discarded.* 2. *Chocolate agar: Small chalky* colonies appeared after seventy-two hours' incubation, appearing as dry looking and wrinkled with raised rough centers and crose-like edges. Stained slides of the growth showed coccic and diphtheroid-like forms which were gram positive and acid fast. Microscopic examination of a single colony by the wet preparation method showed spore-bearing myceliums seemingly radiating from a center. 3. Sodium thioglycollate: Tiny individual white colonies with pink centers suspended in the culture *medium were observed microscopically after ninety-six hours.* The gram-positive and acid-fast stains and wet preparation of the growth gave identical results as that on chocolate agar. Colonies were picked and subcultured to Sabouraud's medium. After forty-eight hours, small, rough, chalky dry colonies were observed which turned pink after a period of six days.

A culture of the fungus on Sabouraud's agar was sent to Dr. C. W. Emmons, Principal Mycologist, Division of Infectious Diseases, National Institute of Health, Bethesda, Md., for *identification. The fungus was identified by Dr. C. W. Emmons* as a typical culture of Nocardia asteroides, an acid-fast actinomycete.

SUMMARY AND CONCLUSION

This is the first report of a verified case of actinomycosis of the central nervous system, with recovery.

The advent of the sulfonamide drugs and penicillin have greatly modified the treatment of systemic actinomycosis. Recent literature has stressed the specific value of these drugs in actinomycotic infections.

This is the first case of actinomycosis of the central nervous system in which adequate chemotherapy has been given. It is our conclusion that intensive treatment with sulfadiazine, penicillin and streptomycin accounts for the good clinical results.

Streptomycin Treatment of Bubonic Plague.—Streptomycin treatment of three very severe cases of plague not responding to sulphonamides resulted in speedy recovery. A fourth severe case was not treated with streptomycin, and the patient died on the eighth day of his illness. Whereas the effect of streptomycin on the general condition of the patients was remarkably good, the buboes appeared to be uninfluenced if treated late. This was true also in respect of the sulphonamides, and in most cases incision and drainage were necessary to bring about resolution.——Haddad, C., M.D., and Valero, A., M.B., *British Medical Journal*, May 29, 1948.

ORAL "MYANESIN" IN TREATMENT OF SPASTIC AND HYPERKINETIC DISORDERS

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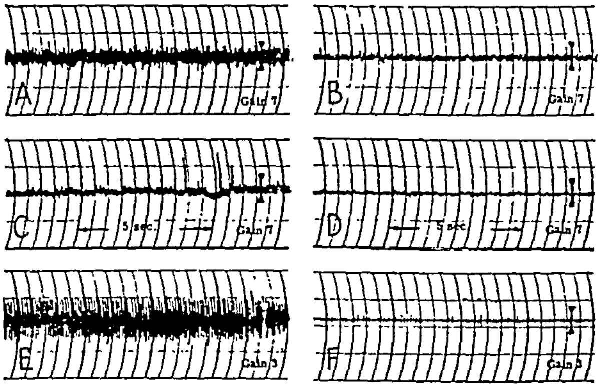
The interesting pharmacologic properties of "myanesin" (3-ortho-toloxy-1,2-propanediol), such as its power to relax spasticity and rigidity, its action to restore deranged reciprocal innervation and its inhibiting effect on certain release symptoms, suggested that this drug may be useful in the production of muscular relaxation during anesthesia and for the treatment of certain spastic and hyperkinetic disorders.[1] "Myanesin" has since been widely used for muscle relaxation during anesthesia in Great Britain,[2] and it was recently reported that 10,000 patients received intravenous injections of this agent.[3]

The value of "myanesin" in the treatment of spastic and hyperkinetic disorders has not been examined as extensively. Stephen and Chandy[4] obtained short-lived beneficial effects on certain diseases of the extrapyramidal nervous system on intravenous administration of a 10 per cent solution of the drug. They also observed localized thrombophlebitis and transient hemoglobinuria following administration. These side effects were due to the solvents used in the preparation of concentrated solutions of "myanesin". Schlesinger and associates[5] observed that the use of 2 per cent solutions of "myanesin" caused neither phlebitis nor hemoglobinuria on intravenous administration; it ameliorated involuntary movements, rigidity, spasticity and tremor. The drug was, however, of limited clinical value because of its evanescent action and the alleged ineffectiveness after oral administration.[6] The purpose of this report is to draw attention to the fact that "myanesin" is well absorbed after oral administration,[1 a c] and to outline briefly the satisfying results obtainable in previously intractable conditions.

The drug was administered as 3.3 per cent (weight in volume) solution in 20 per cent (volume in volume) aqueous propylene glycol, with syrup of cherry 20 per cent (volume in volume to improve the taste of the mixture. The usual single dose was 30 cc. of the mixture equal to 1 Gm. of "myanesin." Children received proportionally smaller doses. To obtain objective and permanent evidence of the effect of the drug electromyographic records[7] were taken prior to administration of the drug. "Myanesin" was then administered without disturbing the leads and muscular activity recorded thirty to sixty minutes after administration of the drug. The disappearance or diminution of the abnormal muscular discharges in the electromyograms could be observed as soon as five to twenty minutes after administration of the drug (the figure). These changes were as a rule accompanied by other signs and symptoms, such as decrease of spasticity, increase of range of motion, amelioration of involuntary movements and relief of pain.



Electromyographic recordings before and after administration of "myanesin." I = 4,000 microvolts. *A, B, C,* and *D,* I = 140 microvolts; residual paralysis of apoplexy. *A* and *B,* leads from biceps brachii and rectus femoris respectively before administration of drug. *C* and *D,* same muscles fifteen minutes after oral administration of 1 Gm. "myanesin." *E* and *F,* parkinsonism. *F,* I = 1,400 microvolts; twenty minutes after administration of 1 Gm. "myanesin" orally.

The rapid absorption of "myanesin" from the stomach could be demonstrated by the presence of metabolic products of "myanesin" in the urine as soon as fifteen minutes after oral administration of the drug. The metabolic product gave a cherry red color on treatment of the urine with Ehrlich's diazo reagent. "Myanesin" itself did not give this reaction. Those workers who found the drug ineffective on oral administration presumably administered it in tablet form. The advantages of the oral administration of "myanesin" in the form of capsules or tablets are clearly evident. Initial experience suggests that tablets and capsules may be effective in certain cases.

Hemiplegic patients whose paralysis has been stationary for four to seven years showed a striking recovery of some of the voluntary movements of the paralyzed limbs ten to twenty minutes after administration of the drug. The maximum benefit was usually obtained after two

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Aided by a grant from the National Foundation for Infantile Paralysis. "Myanesin" was supplied by E.R. Squibb and Sons.

1. (a) Berger, F. M., and Bradley, W.: Brit. J. Pharmacol. 1: 255 (Dec.) 1946. (b) Berger, F. M.: Lancet 1: 97 (Jan. 18) 1947; (c) Brit. J. Pharmacol. 2: 241 (Dec.) 1947.
2. Mallinson, F. B.: Lancet 1: 98 (Jan. 18) 1947. Turnbull, T. A.: J. Roy. Nav. M. Serv. 33: 41 (Jan.) 1947. Lyall, A.: Glasgow M. J. 28: 313, 1947, Wilson, H. B., and Gordon, H. E.: Lancet 1: 357 (March 6) 1948. Davidson, W.H.A.: Brit. M. J. 1: 544 (March 20) 1948.
3. For and Against Myanesin, Lancet 1: 487 (March 27) 1948.
4. Stephen, C.R., and Chandy, J.: Canad. M. A. J. 57: 463 (Nov.) 1947.
5. Schlesinger, E.B.; Drew, A.L., and Wood, B.: Am. J. Med. 4: 365 (March) 1948.
6. Schlesinger, Drew and Wood.[5] Hunter, A.R., and Waterfall, J.M.: Lancet 1: 366 (March 6) 1948.
7. Schwartz, R.P.; Heath, A.L., and Hudson, F.W.: J. Bone & Joint Surg., to be published.

to three days of medication and could be maintained by giving 1 Gm. doses in the mixture three to five times daily. These observations show that loss of function in spastic paralysis is not necessarily or exclusively due to the destruction of motor pathways. It is possible that loss of movement in residual paralysis of apoplexy and spastic paralysis in general may be primarily due to the splinting action of spasticity. Spasticity is caused by an exaggeration of the stretch reflexes. The power of "myanesin" to bring about a return of function in spastic paralysis is due to its property of reducing exaggerated reflexes to normal without affecting the normal reflexes.[1c] In this way spasticity may be reduced without abolition of voluntary power.

Remarkable results were also obtained in certain cases of cerebral diplegia. The drug appeared effective in spastic, athetoid and choreiform types of the disease. In spastic diplegia the drug, in the doses given, caused but little diminution of spasticity as judged by the increased tendon jerks and clonus. Manipulation of the spastic limbs was, however, easier, and the physical performance of the patients improved. They were able to walk more quickly and for longer periods of time than before administration of the drug. The choreiform jerking movements were ameliorated to a somewhat greater extent than the slower athetoid movements. Some of these patients had lesions which were particularly sensitive to the drug. The athetoid movement and incoordination of a woman, 21 years of age, were almost completely controlled by a single 0.5 Gm. dose, but other patients derived less benefit from larger doses repeated several times daily. One patient (a woman of 22 years) while receiving "myanesin" (1 Gm. thrice daily) showed signs of decerebrate rigidity, which subsided again after discontinuance of the drug. The administration of smaller doses (1 Gm. once daily) ameliorated athetosis and did not cause side effects. The favorable effect of "myanesin" in diplegia is due to the depressant action of the drug on the nuclei of the brain stem and to its power to reestablish disturbed reciprocal innervation,[1c] which also plays an important part in the clinical picture of the disease. The amount of benefit derived will also depend on the exact localization of the cerebral lesion.

In Parkinson's syndrome the oral administration of "myanesin" reduced tremor and rigidity. The effect of the drug on oral administration was not as spectacular as that observed after parenteral administration, but it was of longer duration and did not cause side effects. The best results were obtained if "myanesin" was given in addition to the usual drugs of the atropine class. Certain patients derived only little benefit from the medication. This may have been due to too low a dosage, incomplete absorption or insensitivity of the pathologic mechanism to the drug.

The oral administration of "myanesin" also proved effective in various conditions causing muscular spasm, such as arthritis of the cervical part of the spine (fifth and sixth cervical vertebrae), subacromial bursitis, pain low in the back, osteoarthritis of the hip joint and similar conditions. "Myanesin" frequently relieved both spasm and pain due to spasm. Sometimes the action was transient and of short duration, and sometimes it was prolonged indefinitely. In the latter case this effect was thought to be due to an interruption of a pain-spasm vicious circle. "Myanesin" did not have any central analgesic action of the type possessed by morphine or meperidine hydrochloride, but had antipyretic properties of a similar or greater order than the salicylates. The effect of the drug in acute rheumatic fever would be of interest. "Myanesin" was ineffective in contracture due to ischemia, multiple sclerosis and thromboangiitis obliterans.

The oral administration of "myanesin" rarely caused side effects. Blood pressure, heart rate and respiration were not affected. Nystagmus, diplopia, mild muscular incoordination and other symptoms sometimes appearing after intravenous injection were not observed after oral administration. Only 1 out of the 59 patients treated thus far complained of anorexia. Nausea or vomiting were not complained of. Several patients experienced a transient feeling of lassitude for ten to twenty minutes after administration. This lassitude was not, however, great enough to prevent them from carrying out their usual duties. Samples of blood were frequently examined for hemoglobinemia with negative results. The results of the van den Bergh test were always within normal limits. The urine remained free from protein and blood in all cases, but always showed a positive reaction to the Ehrlich diazo test. The intensity of the color obtained with the urine was proportional to the amount of "myanesin" taken. Certain patients have now been on continuous medication for five weeks without showing side effects. Patients receiving the drug should, however, be watched closely, as the chronic effects of the drug on human beings are still unknown.

The benefit obtainable with oral administration of "myanesin" in spastic and hyperkinetic disorders is much greater than that obtained with curare, erythroidine, neostigmine or any other known remedy. But, there is a need for other drugs possessing a still stronger spasticity-releasing action. This preliminary communication is presented in the hope that it will make the life of those who cannot move as they wish more tolerable and stimulate interest in research designed to increase the understanding and essential resources for control of abnormal functions of the central nervous system.

CONCLUSIONS

The ortho tolyl ether of glycerol called "myanesin" has a relaxant effect on muscle slight delayed emptying. Patient 4 had a four year history of recurring, left-sided, renal pain. There was no infection. An oblique roentgenogram demonstrated a ureter coming off posteriorly. The patient did not have enough discomfort to desire surgical treatment. Patient 5 had bilateral infection, but drained well. The only symptom had been cystitis. Surgical treatment was not advised.

Of the nephropexies, I had one satisfactory result, and that was in a man who had bilateral ptosis and dilatation. An exploratory operation had been done for supposed intestinal obstruction, and the patient was found to have a large dilatation of the right renal pelvis, which was drained; drainage persisted as from a urinary fistula. On exploration an anomalous vessel was removed before nephropexy, which has resulted in a satisfactory course over a period of two years.

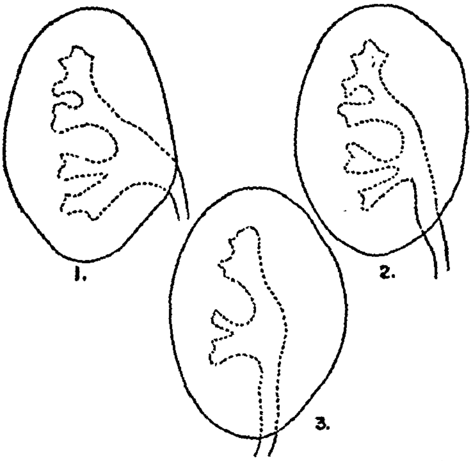

Fig. 1.— Variations as they appear in pyelograms.

The other patients with nephropexy have been worrying along with periodic spells of discomfort not disturbing enough to cause them to wish further surgical procedures. All of the patients with nephrectomy have done well except one who was diabetic. She had nephrectomy for recurring renal infection with dilatation on the right. It was felt that the removal of the infected kidney would prove helpful in her diabetic course. This has not proved to be true, and she not only had severe diabetes, but hypertension with varying periods of renal insufficiency, and incompletely emptying neurogenic bladder and infection of the remaining kidney.

The 2 patients whose lower pole was removed have done well.

COMMENT

Pathogenesis — Of this type of mechanism of development of renal pelvis is not too clear. Without going into too much detail and discussion, it is my impression that the location of the pelvis in the posterior aspect of the kidney is a result of the location of the initial fusion between the ureteral bud and the meta- os rather than rotation anomalies. My reason for feeling rather strongly that this is so is the fact that the kidney itself is usually flat and in the prone position and lies on the posterior abdominal wall like any normal kidney. Unless a lateral or oblique roentgeongram is taken, it may be impossible to determine whether the pelvis is anterior or posterior.

I have asked Charles G. Stockard, assistant pathologist at Doctors Hospital, to look for this type of kidney at the autopsy table. He has informed me that he has examined approximately 100 kidneys at autopsy and so far has failed to find this type of pelvis.

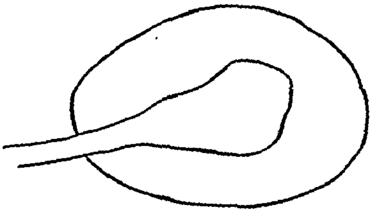

Fig. 2.— Posterior view of kidney.

Figure 1 is a conglomerate drawing of the variations in the pyelograms as they appear on the films. It is impressive to me that they do not appear more abnormal. Number 3, in this figure, is the most suggestive with respect to contour of the pyelograms and the relation of the ureter to the soft tissue outline of the kidney.

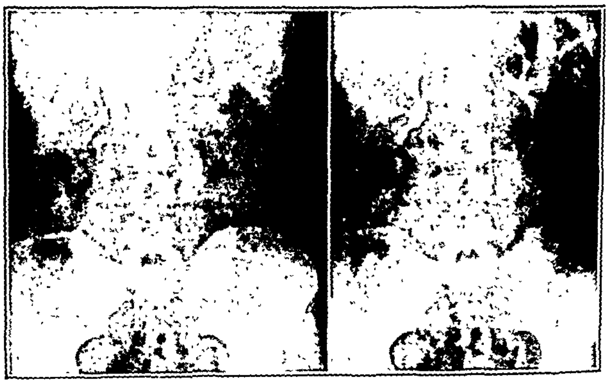

Fig. 3.— Showing gun barrel effect.

Figure 2 is a drawing of the pelvis of the posterior aspect of the kidney in a case in which the condition is pronounced.

The diagnosis of the posteriorly placed renal pelvis is suggested urographically by the gun barrel effect as shown in figure 3, and by the location of the ureter lateral to the medial pelvic border as suggested in figure 4.

Oblique rays may be of considerable value, as demonstrated in figure 5.

In only a few cases did roentgenograms suggest the presence of the posteriorly placed pelvis.

As one sees more of these cases, it is possible to suspect the presence of posteriorly located pelvis just by the appearance of the urogram rather than by any description that one may give of it. The removal of the lower pole or the removal of an anomalous vessel should be the procedure employed when it seems likely that such procedure has a reasonable chance to have a satisfactory result. Figures 6 and 7 illustrate resection of the lower pole.

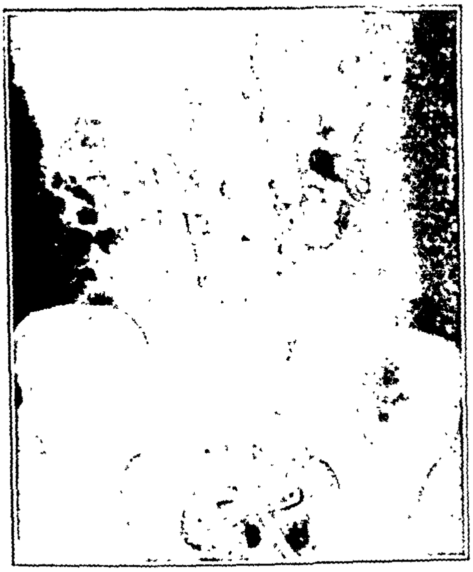
Fig.4.— The ureter seems to be lateral to the medial pelvic border.

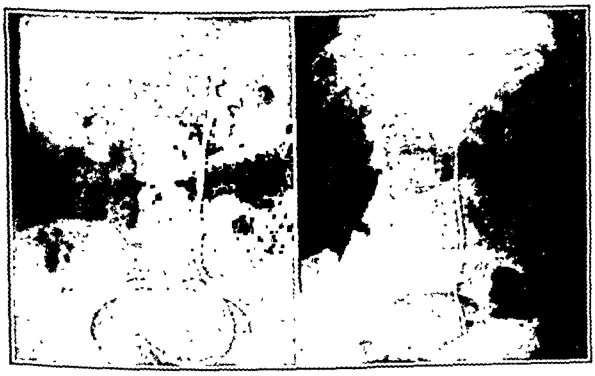
Fig.5.— Pyelogram on the left is anteroposterior. The pyelogram on the right is an oblique view and demonstrates the posterior location of the ureter.

Whenever the arrangement of the vascular pedicle is such that resection cannot be carried out, or an anomalous vessel removed to relieve obstruction satisfactorily, nephrectomy is the best procedure. Small caliber of the ureter is an indication for nephrectomy, for there is no procedure that I know of that can alter the caliber of the ureter in its entirety. This experience with these cases has been most interesting, and the most striking aspect of it is that in every instance when ptosis of the kidney was accompanied by symptoms that were sufficiently severe to demand surgical intervention, a posteriorly placed renal pelvis was always found to be present. As time goes on it may be possible in a larger proportion of cases to fashion the lower pole of the kidney in such a way that the ureter cannot be interfered with by an overhanging mass of renal tissue.

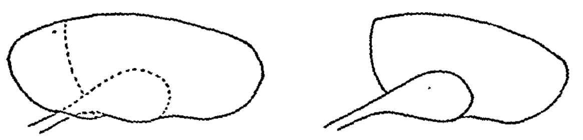
Fig.6.— Resection of the lower pole, lateral view.

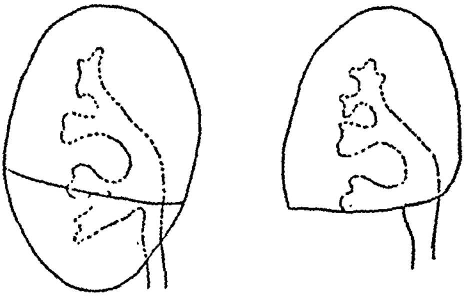
Fig.7.— Resection of the lower pole, front view.

CONCLUSION

The presence of a posteriorly located renal pelvis is an important factor in producing symptoms that are severe enough to indicate surgical procedures in many patients who have ptosis of the kidney.

URETEROPELVIC OBSTRUCTIONS: SYMPTOMS AND TREATMENT

Report of Seventy Cases, Sixty-Two Operations

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and
CECIL J. HAWES, M.D.,
New York

Often the sole manifestation of an obstructive renal syndrome may be a digestive upset with no urinary symptoms. The common nerve supply of the kidneys and the intestinal tract is well understood, and any renal irritation frequently results in indigestion, flatulence and nausea, yet this fact is often overlooked, particularly in the absence of symptoms attracting attention to the kidney. Also, it is too frequently stated that, since the urine is normal, the kidneys cannot be considered as the possible cause of gastrointestinal symptoms. Many serious urologic lesions may exist even when the urine is normal.

The principles of the treatment for partial obstruction at the ureteropelvic junction are being more universally recognized by urologists. Successful repair of this deformity, with resultant conservation of renal tissue, is often accomplished, and yet the general medical profession is not wholly aware of these improvements. Formerly, kidneys with

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ureteropelvic obstruction and varying degrees of hydronephrosis were removed, mainly because the results from plastic surgery were so frequently unsuccessful that, subsequently, the kidney had to be sacrificed. Although each patient must be considered individually, our aim should be to preserve functioning renal tissue in most of these cases. Greater success has been accomplished by a better understanding of the principles involved in the surgical repair, together with the use of the new antiseptics and antibiotics.

A preliminary report by Henline and Menning[1] in 1943 stated:

> The successful treatment of hydronephrosis due to ureteropelvic obstruction postulates, first, a knowledge of the etiological factor or factors involved and their proper recognition and evaluation at operation. It is all too familiar that merely severing aberrant vessels in certain cases results in temporary or no improvement. Second, a surgical procedure must be applied which is best adapted to the correction of a given deformity. The technique should restore a well-draining pelvi-ureteral outlet. Third, complete plastic repair requires prolonged nephrostomy drainage and splinting of the area of repair. Where this is neglected, secondary contracture and distortion at the site of the repair will vitiate the initial surgical correction, no matter how meticulous the technique.

Our success in these earlier cases indicates that satisfactory results in our hands depends, to a large extent, on the fulfilment of certain fundamental principles. First, the diagnosis should be made by a ten minute delayed roentgenogram following retrograde pyelography. The site of the obstruction at the ureteropelvic junction is seen, and the delay in the emptying of the kidney pelvis is apparent (fig. 1). Second, the exact cause of such obstruction must be sought and corrected at the time of operation Intrinsic stenosis at the ureteropelvic junction is the most common cause. Even if aberrant vessels and bands are also present, their separation may relieve only part of the cause of the obstruction. In this case, the intrinsic stenosis must also be remedied. Third, the deformity must be adequately corrected and, as a rule, the narrow ureteropelvic junction must be incised longitudinally. We have preferred the Foley Y plasty in most instances. Fourth, the third principle is likely to fail unless nephrostomy drainage to divert the urine is established and a soft rubber catheter is inserted as a splint down the ureter. We have permitted both the nephrostomy tube and the splinting catheter to remain in place for six weeks to allow for complete healing of the repaired ureteropelvic junction. Fifth, resection of a portion of the enlarged pelvis and careful suture of the areas to be approximated are desirable. Careful suturing may be less important than the other principles in the repair of this deformity.

Once the diagnosis of ureteropelvic obstruction has been made, the choice of treatment must be considered. Local treatment, such as dilating the narrowed area with catheters, bougies or bulbs, is notoriously unsuccessful. While it is true that symptoms may be relieved for varying periods by passing a catheter through the constricted area, the permanent benefits have not been encouraging in our hands. The temporary establishment of drainage by a catheter will usually relieve the renal colic, but symptoms will recur in most instances. The narrowing of the ureter persists, and continued back pressure in the pelvis will further damage the kidney. In some instances it is advisable to leave the patient alone and subject him to reexamination to evaluate the progress of the obstruction. However, in most instances, surgical intervention is necessary to relieve the obstruction and prevent continued renal damage.

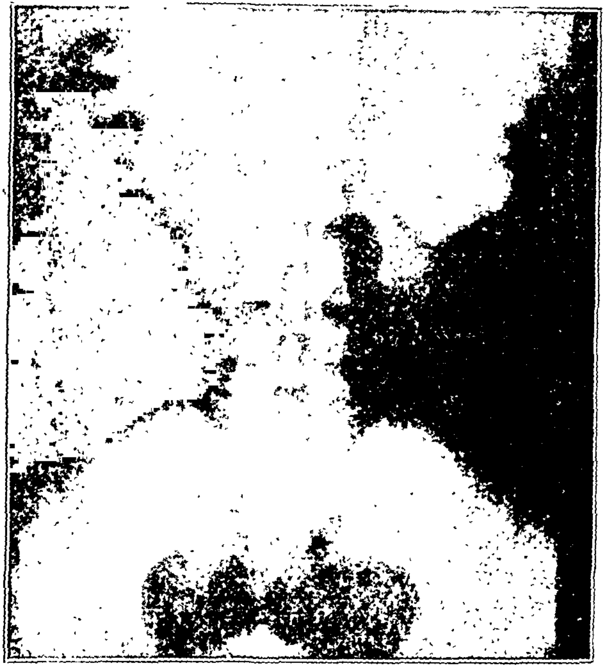

Fig. 1.—Typical ureteropelvic obstruction. Note empty ureter and retained contrast medium in renal pelvis.

In the aforementioned preliminary report the early results of 11 Foley Y plastic[2] operations, following the foregoing principles, were reported. The present report includes these cases and summarizes the findings of 70 ureteropelvic obstructions in 52 patients treated between 1942 and 1946 inclusive. Sixty-two were operated on. Four required nephrectomy. A Foley Y plasty was performed on 45 and the remaining 13 had various other types of operations.

AGE

The ages of these 52 patients ranged from 4 to 63 years. The largest percentage were between 20 and 40 years (61.6 per cent). Although many of these obstructions are congenital, they often go unrecognized for many years. Supervening infection may first attract one's attention to the urinary tract.

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[1] Henline, R. B., and Menning, J. H.: The Management of Hydronephrosis Due to Ureteropelvic Obstruction: Preliminary Report, J. Urol. 50: 1943.

[2] Foley, F. E. B.: A new Plastic Operation for Stricture at the Ureteropelvic Junction: Report of Twenty-One Cases, J. Urol. 38: 643-672, 1937.

SYMPTOMS

The frequency of gastrointestinal symptoms in renal disease is attested by the fact that 20 of 52 patients complained primarily of indigestion, flatulence or nausea. In 19 patients, voided urine was normal. This serves to call attention to the fact that one must not eliminate renal disease in the presence of normal voided urine. Urinary symptoms were present in 22, and some renal pain, varying from backache to renal colic, in 46 (table 1).

TABLE 1.—*Symptoms, 52 Patients*

Gastrointestinal (indigestion, flatulence, nausea, etc.)	20
Urinary Symptoms (hematuria, frequency, nocturia, dysuria, etc.)	22
Backache to renal colic (2 days to 14 years)	46
Voided urine normal (remainder, some RBC and WBC)	19
Voided urine after operation normal	25

After operation, the voided urine was normal in 25 patients.

DILATATION OF RENAL PELVIS

The size of the hydronephrosis (grading from 1 to 4) showed that none of the 70 pelves was normal; the larger number (33) were grade 2 before operation. After operation, 11 were shown to be normal and 27 had grade 1 dilatation. Some improvement was noted in practically all cases. There were 18 patients with bilateral ureteropelvic obstruction, but only 9 were subjected to bilateral plastic operations. Renal calculi were present in 12 kidneys.

RENAL FUNCTION

Preoperatively, 13 of 25 patients with ureteropelvic obstructions had diminished function on the affected side, while 12 of 25 had equal function of both kidneys. After operation, 10 of the 13 patients with diminished function were improved according to our functional tests. All patients were subjected to retrograde pyelography and a ten minute delayed roentgenogram taken after the pyelogram. All except 4 showed evidence of delay in eliminating the contrast medium from the renal pelvis.

CAUSES OF URETEROPELVIC OBSTRUCTION

In 44 (71 per cent) of 62 kidneys operated on, the cause of the ureteropelvic obstruction was found to be within the ureter (table 2).

The causative factors included stricture and hypertrophy of the ring (circular) muscle and valves which cause the lumen of the ureter to be diminished in size. In 2 (3.2 per cent), aberrant vessels, bands or adhesions were found to be the sole cause of obstruction. In the remaining 16 (25.8 per cent), both extrinsic causes (aberrant vessels, bands, etc.) and intrinsic causes (stricture, hypertrophy of the muscle or fibrous tissue) were present. It is this last group, in which a combination of factors produced the obstruction, that requires particular diligence in order to make certain that all the obstructive factors are corrected. One must not be misled by the finding of an aberrant vessel or band and fail to search for still another obstructive element within the ureter. To overlook an intrinsic obstruction may lead to progressive damage of the kidney until it is destroyed beyond repair. In our cases, the infrequent finding of aberrant vessels (3.2 per cent) as the only cause of ureteropelvic obstruction suggests the necessity of carefully searching for other causes. Unfortunately, the literature is filled with evidence that aberrant vessels and bands are the most common cause of these obstructions. Our findings coincide with those of Geraghty and Frontz,[3] who, in 1918, found inflammatory contracture and strictures as the almost universal cause of ureteropelvic obstructions. Although Eisendrath and Strauss,[4] in 1921, found accessory vessels in 21 per cent of kidneys at autopsy, their role in producing ureteropelvic obstruction in most cases is questionable.

TABLE 2.—*Causes of Ureteropelvic Obstruction, 62 Cases*

	Number	Percentage
Extrinsic alone (aberrant vessels, bands or adhesions)	2	3.2
Intrinsic alone (stricture, hyperplasia of circular muscle, etc.)	44	71.0
Both extrinsic and intrinsic	16	25.8

OPERATIONS

There were 62 operations performed on 52 patients, 10 having both kidneys operated on. Of these, 39 had 45 Foley Y plastic operations, and of these 9 had resection of the redundant pelvis. The remainder had various types of procedures, as shown in table 3.

In all of the Foley Y plastic operations a nephrostomy tube (Malecot catheter) was used for drainage and a soft rubber splinting catheter was inserted with the nephrostomy tube and passed at least halfway down the ureter. In 29 of these, both tubes were left in place for six weeks or more. Pyelograms at varying intervals, with the contrast medium injected through the nephrostomy tube, gave information about the healing at the ureteropelvic junction. The final results in these 29 cases were: good, 20; fair, 4; and poor, 3. There was no follow-up in 2. When the nephrostomy tube and splinting catheter were removed earlier (or pulled out), the results were somewhat less satisfactory. This indicates that prolonged drainage and splinting are likely to give better results in these plastic procedures.

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[3] Geraghty, J. T., and Frontz, W. T.: A Study of Primary Hydronephrosis, J. Urol. 2: 161-210, 1918.

[4] Eisendrath, D. N.: Hydronephrosis Due to Obstruction of the Renal Pelvis by One or Two Main Renal Arteries, 24: 173-185, 1930.

The larger group of patients (27 out of 45) drained no urine from the nephrostomy wound after forty-eight hours, indicating that adequate drainage down the ureter to the bladder had been reestablished. One urinary fistula developed, in the case in which both the nephrostomy tube and the splinting catheter were inadvertently pulled out on the nineteenth postoperative day. Subsequently nephrectomy was required.

TABLE 3.—*62 Operations*

Foley Y plastic (9 with resection of redundant pelvis)	45
Rammstedt plastic operations	5
Reimplantation of ureter	4
Nephrectomy	4
Intubation	1
Ligation of aberrant vessels only	1
Ligation of aberrant vessels with nephrostomy and splinting catheter.	1
Nephrolithotomy with nephrostomy and splinting catheter	1

INFECTION

In the group of 45 Foley Y plastic operations, 39 renal cultures were taken, 23 of which were sterile before operation. After operation, 38 renal cultures were taken, 25 of which were sterile. Hinman[5] stated that plastic operations should not be undertaken in infected kidneys. While attempts should be made to eliminate infection when present, our experience suggests that plastic operations can be successfully performed in the presence of renal infection. In some instances it is impossible to eliminate infection in the presence of ureteropelvic obstruction. Furthermore, the newer antiseptics and antibiotics have undoubtedly made these operations safer even in the presence of infection.

POSTOPERATIVE RESULTS

The evaluation of postoperative results is difficult. One is not justified in stating that relief of pain constitutes a successful operation. While relief of pain may be satisfactory to the patient, the surgeon should convince himself that he has improved the drainage from the kidney and has adequately removed the obstruction which was causing gradual damage to the kidney. Relief of pain may occur following complete denervation of the kidney, especially around the ureteropelvic junction. The removal of these nerves may relieve the renal pain, at least temporarily, and satisfy both the patient and the surgeon that no further damage is occurring to that kidney. Other evidence regarding the results should be sought.

Of 39 patients with 45 Foley Y plastic operations, recently questioned, 34 (87.2 per cent) were completely free of symptoms (table 4). Three (7.7 per cent) were not relieved, and 2 (5.1 per cent) were doubtful. Of the patients who had other operative procedures, about half were symptom free and half were unimproved.

TABLE 4.—*Relief of Symptoms After Operation*

	Foley Y Plastic		Others	
	No.	%	No.	%
Yes	34	87.2	6	46.2
No	3	7.7	6	46.2
Doubtful	2	5.1	1	7.6

The postoperative pyelogram was considered by us to be satisfactory in 26 cases (65 per cent) and fair in 10 others (25 per cent), while 4 (10 per cent) showed poor results. In 5 no follow-up was possible.

Thirty-four of these 39 patients were subjected to retrograde pyelograms and a ten minute delayed roentgenogram. In 20 the contrast medium was completely expelled from the renal pelvis, all of whom had shown retention before operation. The remainder still showed some delay in expelling the contrast medium from the pelvis to the bladder.

To evaluate the results properly, one should not be misled by the relief of symptoms alone. Evidence of improved function (11 of 13 cases), and delayed retrograde pyelograms which show improved drainage from the renal pelvis give weight to the success of the operative procedure. Numerous patients have come under our observation after temporary relief of symptoms following severing of aberrant vessels or removal of fibrous bands. A thorough study of many of them revealed that the real obstruction at the ureteropelvic junction had not been relieved and renal damage had continued to progress. In many, the symptoms were temporarily relieved and both the surgeon and the patient considered the result to be satisfactory. In these cases, particularly, subsequent examinations should be continued for prolonged periods to evaluate the results.

One of our early patients had been subjected to surgical procedures on both kidneys three years before he came under our observation. Aberrant vessels had been severed at both ureteropelvic junctions together with the freeing of bands in this area. He was practically free from symptoms for almost three years, when he suddenly experienced left renal colic and anuria. Catheters would pass to neither kidney and an emergency left nephrostomy was performed. Subsequent investigation revealed grade 4 hydronephrosis in each kidney with bilateral intrinsic ureteropelvic obstruction (fig. 2). Plastic repair of both kidneys reestablished drainage, and he has remained well until the present (five and one-half years) (fig. 3).

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[5] Hinman, F.: Treatment of Hydronephrosis, Southwestern Med. 26: 357-368, 1942.

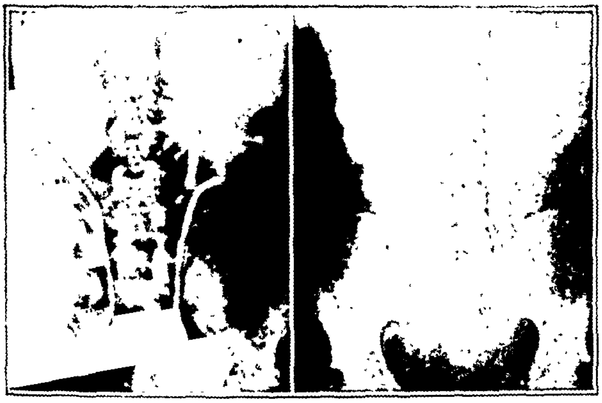

Fig. 2.—Bilateral ureteropelvic obstructions with huge hydronephrosis and complete anuria. Ureter on left was reimplanted in pelvis and Foley Y plastic operation was done on right.

MORTALITY

There were no operative deaths in this series. Two patients have subsequently died, 1 of uremia four years after operation and 1 of cardiac disease and uremia two and one half years after operation. Both of these patients had seriously damaged kidneys before operation and, although the operation may not have prolonged their lives, it is doubtful that it shortened the life of either one.

RENAL CALCULI

Stones were present in 12 of these kidneys before operation. Only 2 of the patients have reformed stones (table 5).

TABLE 5.—*Renal Calculi*

Before Operation	
Present in	12
Absent in	58
After Operation	
Reformed calculi	2
Stones developed after Foley Y plasty	5 11.1% of 45 cases

However, 5 (11.1 per cent) of the 45 who had Foley Y plastic operation later had renal calculi. These may have formed from the prolonged nephrostomy drainage. This hazard should not be overlooked when prolonged drainage becomes necessary. A roentgenogram taken before the nephrostomy tube is removed may reveal the calculus, which sometimes may be dissolved by irrigation and this complication thereby prevented.

OTHER PLASTIC OPERATIONS

Other plastic operative procedures have not been very successful in our hands. Of 13 cases, the results were satisfactory in only 2. Prolonged drainage and ureteral splinting were not carried out in these cases.

NEPHRECTOMY AFTER PLASTIC OPERATION

In this series of cases, only 2 patients have thus far required subsequent nephrectomy. One patient required nephrectomy four months after an unsuccessful Rammstedt plastic operation. Failure in this case may be attributed partly to the fact that the nephrostomy tube and the splinting catheter were removed in twenty-one days. In the other case, nephrectomy was performed six months after a Foley Y plasty. The splinting catheter and nephrostomy tube were inadvertently pulled out on the nineteenth postoperative day and the repair was unsuccessful. A urinary fistula developed and nephrectomy was necessary.

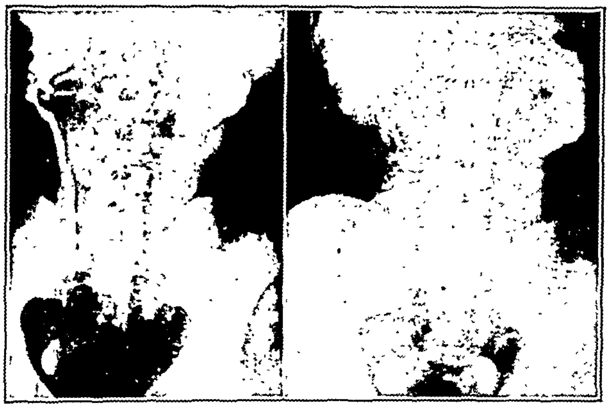

Fig. 3.—Same patient as in figure 2, showing postoperative result.

SUBSEQUENT FINDINGS IN TEN PATIENTS OPERATED ON IN 1942

Of the 7 patients subjected to 11 Foley Y plastic operations (4 bilateral), reported by Henline and Menning in 1942, 7 kidneys remain entirely satisfactory, 2 are considered fair, and 2 poor. These results compare favorably with reports by Moore[6] and Walters, Cabot and Priestly,[7] who reported about 20 per cent failure. Our 2 failures were in 1 patient who had previously had a Rammstedt repair on his right kidney with drainage for only fifteen days. Subsequently Foley Y plastic repair on both organs failed to save his severely damaged kidneys, and he died four years later.

COMMENT

Although each case of ureteropelvic obstruction must be considered individually, experience suggests that the greatest number of cases result from actual narrowing within the ureter as it leaves the renal pelvis. This stenosis may be difficult to visualize even after the renal pelvis and ureter are exposed at operation because it is the caliber of the lumen of the ureter which must be determined. The ureter may be normal in appearance from the outside but constricted within. One should not be content to sever aberrant vessels or adhesions or bands, but should also determine the caliber of the ureter. Unless this is faithfully done in each case, the results will be disappointing in many instances.

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[6] Moore, T. D.: Late Results of Plastic Surgery in Hydroenphrosis, South M. J., 35: 425-433, 1942.

[7] Walters, W.; Cabot, H., and Priestley, J.: Operative Results in Non-Calculous Hydronephrosis: Results in Seventy-One Plastic Operations, J. Urol. 38: 688-693, 1937.

Not all patients with hydronephrosis have ureteropelvic obstructions. A stenosis in the midureter or at the ureterovesical junction will produce hydronephrosis. It is even more common to find a dilated renal pelvis resulting from a small stone lodged along the ureter. Therefore, accurate localization of the obstruction at the ureteropelvic junction is essential before treatment be undertaken.

An excretory urogram may indicate obstruction at the ureteropelvic junction. However, it is our practice to rely only on retrograde pyelograms for the diagnosis of these obstructions. Cystoscopy permits an evaluation of divided renal function and, at the same time, the taking of bilateral pyelograms. The size of the hydronephrosis and the area of obstruction are more clearly outlined. A ten minute delayed roentgenogram after pyelography will reveal retained contrast medium in the renal pelvis. It is typical for the renal pelvis to be well outlined in this roentgenogram, but the ureter is usually empty of contrast medium. One may, therefore, rely on the obstruction's being present at the junction of the ureter with the pelvis.

The operative procedure should adequately correct the deformity. In some instances, various other operations are necessary to attain this result, but in our experience the majority of cases lend themselves to the Foley Y plastic repair. The exact type of repair is probably less important than the longitudinal incision of the stenosed area, with prolonged nephrostomy drainage and use of the splinting catheter. Davis[8] has advocated only the incision of the stenosed area, but has insisted on splinting the ureter for sufficient time to permit it to proliferate and grow around the splinting catheter. He called this procedure "intubation" and reported good results in his cases. Cabot,[9] Ormond[10] and Foulds, among others, advised prolonged drainage and ureteral splinting, with which Davis and we agree. The ureteral catheter acts as a scaffold around which the ureter may re-form and Gibson[11] compared its use to the use of a splint in a fractured bone by the orthopedic surgeon.

Unless necessity demands, we prefer not to sever the ureter completely from the pelvis and reimplant it in a dependent portion of the pelvis. In a few cases this has been necessary, but our results indicate that, at least for some months, the renal pelvis will not drain as well as in those cases in which the ureter has only been incised longitudinally. It is our impression that, at least temporarily, the severed nerves prevent normal peristalsis.

Although our results in this series of cases are not all that one would desire, they are far superior to those achieved in cases in which these principles were not followed. Our attempt should be to reestablish renal drainage, thus preventing continued renal damage and conserving the remaining functioning renal tissue.

SUMMARY AND CONCLUSIONS

Gastrointestinal symptoms, even in the presence of normal urine, may indicate an obstructive renal syndrome. The diagnosis of obstruction at the ureteropelvic junction is made by retrograde pyelography with, in addition, a ten minute delayed roentgenogram. Most ureteropelvic obstructions are due to narrowing of the lumen of the ureter even though aberrant vessels, bands and adhesions may also be present.

Plastic operations should only be performed when sufficient renal tissue remains to sustain life. The Foley Y plastic operation has been more successful in our hands than other procedures, but only when combined with nephrostomy drainage and the use of a splinting ureteral catheter for six weeks.

Results should be evaluated, not by relief of symptoms alone, but by improved renal function and evidence of improved drainage of the renal pelvis by retrograde pyelogram and a delayed roentgenogram. These patients should be followed for several years before final results are tabulated.

The operative mortality should compare favorably to that in other renal surgery.

Renal calculi may form during prolonged nephrostomy drainage and, if discovered before the tube is removed, may occasionally be dissolved by irrigation. Subsequent nephrectomy became necessary in 2 cases. Poor results were obtained in 10 per cent of the cases followed. Satisfactory results, or improvement, were obtained in the remaining 90 per cent of cases.

ABSTRACT OF DISCUSSION

DR. JOHN M. PACE, Dallas, Texas: Dr. Herbst has brought to us an instructive paper on a most unusual and rarely recognized anomaly. That the incidence of the posterior renal pelvis is low is brought out by his study of postmortem material which failed to demonstrate the anomaly in one hundred anatomic examinations. The urographic description of the gun barrel pelvis with the ureter lateral to the medial border of the kidney is important; however, this roentgenographic picture was not constant. Should one suspect a posterior pelvis in a kidney which meets the usually accepted criteria for nephropexy, I feel that the patient should be advised that a nephrectomy may be deemed advisable for the reasons so admirably given by Dr. Herbst. Dr. Herbst is to be congratulated for bringing to our attention a renal anomaly which has not been previously recognized as a hazard in nephropexy.

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[8] Davis, D. M.: Intubated Ureterotomy, Surg., Gynec. & Obst. 76: 513-523, 1943.

[9] Cabot, H., in discussion on Pilcher, F., Jr.: The Treatment of Bilateral Congenital Hydronephrosis, Proc. Staff Meet., Mayo Clin. 12: 279-283, 1937.

[10] Ormond, J. K.: End Results of Plastic Operations on the Kidney Pelvis for Hydronephrosis, Am. J. Surg. 38: 70-79, 1937.

[11] Gibson, T. E.: Hydronephrosis: Classifications and Plastic Repair of Ureteropelvic Obstruction, Surg., Gynec. & Obst. 80: 485-496, 1945.

DR. CLARK M. JOHNSON, San Francisco: In unilateral ureteropelvic obstruction, any type of repair is doomed to failure in the presence of complete compensatory hypertrophy of a normal mate. This is determined by roentgen evidence and accurate estimation of the relative function. Dr. Henline's observation that any kidney which shows evidence of being able to sustain life in the absence of its mate is merely another way of stating the same thing. At the original examination one may find the function greatly reduced on the affected side. By leaving a ureteral catheter in place for twenty-four to forty-eight hours and rechecking the function of the separate kidneys, one may find even in this short length of time considerable improvement in the function of the affected kidney. This is good evidence that the mate is not completely hypertrophied and that the affected kidney may be saved. I wish to stress that there is no one method of relieving all types of ureteropelvic obstructions. I do not concur with those who use small splints but prefer the largest splint that the ureter below the obstruction will admit. I do not believe that it makes any difference what type of repair is used, as long as the obstructing area is incised longitudinally and the redundant pelvis resected, giving a good funnel-shaped outlet. I prefer to use few or no sutures, and in most instances leave the incised ureter wide open over the splint. It is true that simple division of aberrant vessels or bands will not relieve most obstructions because there is usually an intrinsic narrowing of the ureter due to muscular hypertrophy which is not obvious from the surface. This may be congenital and the sole cause of the hydronephrosis, or secondary to the external pressure and the increased muscular effort required in peristalsis. The presence of infection does not mean that the obstruction cannot be relieved and function restored. This is particularly true when the obstruction is bilateral. The principles of repair as set forth by Dr. Henline, using nephrostomy and ureteral splinting, will be successful in most cases, provided that proper cases are selected. As yet one cannot be certain from the tests at hand which cases are amenable to repair. This must often be left to the surgeon's judgment at the time of operation, and even then one may be wrong.

DR. JAMES SARGENT, Milwaukee: Roy Henline was one of the pioneers in plastic surgery in hydronephrosis. He has made one particularly important point, and that is that aberrant blood vessels and bands of adhesions play a relatively unimportant role in hydronephrosis. The disease is caused primarily by an anatomic atresia at the ureteropelvic junction. Proper correction depends on reopening of the lumen of the canal whether or not an aberrant vessel is present. He has made another point that is extremely important. That is the fact that gastric symptoms often are important and sometimes are the only symptoms indicative of hydronephrosis. I recall an officer in the Navy who had hidden his history of nine years of dyspepsia in order to get into the service. Under heavy duty, he broke down and was more or less constantly on the sick list. He had repeatedly negative gastrointestinal and gallbladder studies, and finally came up for medical discharge. Excretory urograms were run and a fairly sizable hydronephrosis found. Its correction relieved his dyspepsia for the first time in ten years. There was nothing in that man's clinical history that would have led any one to suspect that he had had hydronephrosis - except dyspepsia. Both Dr. Henline and Dr. Johnson have stressed the value of plastic surgery in hydronephrosis. Any kidney that has any life in it at all, provided it does not have a prohibitive pathologic condition, should undergo a surgical corrective procedure. I am sure that I want to go along with the two preceding speakers on the size of ureteral catheter splints and the length of time that they are left in. The service of the catheter splint is one of alinement during the time that postoperative fixation of tissue occurs, and unless there is extravasation at the site of the plastic operation, the tissues are fairly well set within a matter of days. In my experience splinting for eight or ten days has proved adequate, and the smaller the inlying splint, the better.

DR. DAVID M. DAVIS, Philadelphia: As I look back to what ureteropelvic surgery amounted to twenty-five years ago, I am amazed at the progress that has taken place. It has taken place gradually, so that one does not notice it from year to year but it is a fact that twenty-five years ago ureteropelvic surgery was entirely the property of a few daring souls. Too often when one kidney was affected nephrectomy had to be performed. When both kidneys were involved, one had to be content with palliation, which did not do much to prolong the patient's life. Now, everything is changed. Dr. Henline and his associate produce a series of cases in which they obtained successful results in 65 per cent by any criterion and in 90 per cent so far as obtaining relief of symptoms is concerned. That changes the entire status of things. We are no longer privileged to wait and watch in cases of hydronephrosis, even though the hydronephrosis be slight, even though the symptoms be slight, even when there is no infection. Many times it is the onset of infection which causes symptoms to arise. Now, we are faced with an entirely different problem, and a much more congenial one, I am sure, to every surgeon; that is to find out the best way to operate on these patients and get the largest percentage of success. I am confident that in another twenty-five years the percentage of success will rise even higher than it is now. I am one of the most enthusiastic devotees of using splints, and at the meeting of the American Urological Association we hope to present a "roundup" of all of of our results in human patients as well as in experimentation on animals. These experiments will be interesting to everybody, whether believers in sutures or not, because they will show some data on exactly how the ureter heals in the presence of a splint, and with or without the removal of a good deal of tissue from the ureteral wall; what happens when the splint is left exposed to the periureteral tissues and how the ureter reconstructs itself and how long it takes. These data may help us to solve the question which Dr. Sargent has mentioned, what is the best length of time to leave the splint in place and what is the best size of splint to use.

DR. THOMAS D. MOORE, Memphis, Tenn.: Dr. Henline has presented an excellent review of his extensive experience in the conservative treatment of hydronephrosis. In the differential diagnosis of hydronephrosis not only is normal urine common, as mentioned by Doctor Henline, but also a preliminary roentgenogram frequently reveals nothing abnormal. The combination of these two negative findings thus may become misleading and guide one away from consideration of the urologic problem. Several years ago I was invited to contribute to a symposium on hydronephrosis by discussing the late results of conservative surgery. A review of the literature at that time revealed approximately 20 per cent failures. Therefore, when confronted with the problem of conserving the hydronephrotic kidney there was 1 chance in 5 that a conservative plastic procedure would not be successful. The figures presented by Dr. Henline indicate a definite change for the better, due perhaps not only to improved technic but to a wiser selection of cases and to a better means of controlling infection by the judicious use of chemotherapy and antibiotics. The prospects for a good result from conservative surgical treatment are not nearly so good when dealing with hydronephrosis of the intrarenal type, in which the dilation is confined chiefly to the calices. This type of hydronephrosis is accompanied by more parenchymal damage and thus a greater degree of impairment of renal function. The extrarenal type of the disease is more amenable to conservative efforts. It is always interesting to hear the report of successful cases; the failures should be equally or more interesting. In the discussion of causes of failures much can be learned. I recall a case in which the immediate result seemed promising but unfortunately I underestimated the importance of an adynamic ureter. The hydronephrosis was of a large extrarenal type in which the ureter appeared decidedly stenosed at the ureteropelvic juncture, below which it followed a tortuous course, accompanied by moderate ureterectasis. At operation the stenosed segment was resected and the ureter reimplanted in the pelvis. In spite of this the hydronephrosis was progressive and after a year nephrectomy was necessary. A year later a retrograde ureterogram revealed persistence of the pronounced degree of diffuse ureteral dilatation It was evident that the adynamic ureter was the probable cause of failure in this case.

DR. A. HYMAN, New York: It seems to me that the pediatricians are still remiss in recognizing these conditions. Despite all the articles and books that have been published on pediatric urology, the pediatricians often fail to make the diagnosis of congenital hydronephrosis. When they have a child with normal urine, they seem to forget that such a condition can exist. In a number of cases in children that we have had, the only symptoms have been abdominal cramps. A few of these children have been operated on for appendicitis. So I think this point should be brought home to the pediatricians. Some men believe in splinting for six to eight weeks, and longer. Others splint for eight to ten days. In a few articles, there is no mention of splinting at all. I was interested to hear Dr. Davis say that they are doing experimental work along these lines, because there has been little experimental work to tell us just what the changes are in the ureter and the process of healing and how long these ureters should be splinted. I am getting away from the long splinting and feel that two weeks at the most is sufficient. As to the second question, is it necessary to resect a redundant pelvis? In going over the literature, a number of men think it is necessary to do so and others do not. I feel that a large redundant pelvis should be resected. We should be more and more conservative in the surgery of hydronephrosis, especially now that we have antibiotics and sulfonamide drugs. Where previously nothing much could be done to combat infection, with these methods at our disposal the results of plastic procedures should be better and better as the years go by.

DR. WILLIAM P. HERBST, Washington, D. C.: I want to thank Dr. Pace for his discussion and to describe one aspect of the mobilization of these kidneys. As one mobilizes a kidney, the thumb falls into a depression in the posterior wall. This makes the diagnosis.

DR. ROY. B. HENLINE, New York: I am extremely pleased that this paper brought forth so many comments, regardless of whether they agreed or not. I am also pleased that some of them did agree to a great extent That was the primary purpose of this presentation. Dr. Johnson made two or three interesting points which I thoroughly agree with but which were perhaps expressed in just a little different way. I agree that the larger splinting is preferable. I have never seen any untoward effects from use of as large a splinting catheter as would fit down the ureter. In other words, I have never seen any evidence of necrosis or damage to the ureter following this procedure. I believe Dr. David Davis' experimental work will help solve the problem as to how long the splinting catheter should be left in place. I am convinced that in none of these cases can the sutures be watertight and that there is always some leakage at the suture line which is minimized by the nephrostomy drainage. On the other hand, as these sutures are absorbed the approximated edges should heal sufficiently to prevent further urinary extravasation. This is benefited by nephrostomy drainage which promptly drains the secreted urine and prevents any pressure within the renal pelvis. If the approximated edges are sufficiently healed before the nephrostomy tube is removed, there will be no urinary leakage to produce scar tissue around the repaired area. However, this problem will probably be solved by experimental work, some of which Dr. Davis has done I want to thank you all for the excellent discussions that this has provoked, and, if nothing else has been left in your mind from this presentation, I hope that we may no longer hear from the urologist particularly, and also from the roentgenologist, that there is a ureteropelvic obstruction caused by an aberrant vessel. I think that should be deleted to a great extent from the literature

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Queen Victoria and Lord Lister.—On one occasion Lord Lister told me that Queen Victoria had written to him and asked him, as president of the Royal Society, to do all in his power, by speaking and writing, to stop vivisection. He knew that his reply would be very disappointing to the Queen. He sent a very carefully worded reply, saying that it was a vital necessity for the good of Her Majesty's subjects that vivisection should be allowed to continue He further respectfully assured the Queen that vivisection in this country was under the careful supervision and control of Her Majesty's Government. After receiving this letter the Queen took no further notice of him —Cheatle, Sir Lenthal, Annals of the Royal College of Surgeons of England, January 1948.

Clinical Notes, Suggestions and New Instruments

HYPERKERATOSIS AND ONYCHOLYSIS AFTER USE OF NEW NAIL COSMETIC

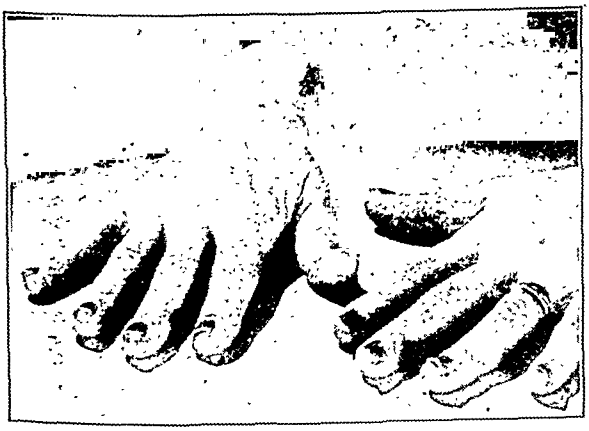
S. J. FAHBERG, M. D.
Newark, N. J.
and
HERMAN SHARLIT, M. D.
New York

A new product "everon" has recently been introduced for use in lacquering nails. Apparently it is applied to the nail before the enamel for the purpose of producing a better adhesion of the enamel to the nail substance. The chemical nature of this product is not known to us beyond the fact that it contains some synthetic resins.

Two patients are the basis for this report; their clinical condition and history are virtually identical:

Within three days of the use of "everon" (in one after a first application and the other after a fourth application) the tips of all fingers became tender and slightly swollen; then followed changes in all fingers leading to subungual hyperkeratosis and the beginning in some nails of onycholysis. Attempted removal of the enamel even within a week of its application disclosed a permanent staining of the nail.[1]

Patch tests with "Everon" on both these patients elicited positive reactions.



Showing discoloration of nails in case 1.

A photograph of the nails in 1 case is supplied. Note the discoloration which remains after the enamel has been removed with the usual solvents.

Opportunity has not as yet been afforded to study or analyze the mechanism of the production of the damage. The severity of the damage and the length of time required for recovery—if complete and permanent recovery does ensue—demand quick publicity of these facts to bring a halt to continuing exposures.

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[1] The discoloration was revealed to be blood pigment on undersurface of nail.

SUBACUTE BACTERIAL ENDOCARDITIS

Report of Two Cases

JAMES R. REULING, M.D.
Bayside, N. Y.
and
CHARLES CRAMER, M.D.
Jackson Heights, N. Y.

One of the remarkable discoveries of medical science has been penicillin, and probably the best example of its value is in the treatment of subacute bacterial endocarditis. Any doubt that there was reason to dread the disease will be quickly dispelled if one reads the report of the cases from Peter Bent Brigham Hospital.[1] From 1913 to 1937 there were 237 cases with no recovery. Almost universally the experience with subacute bacterial endocarditis has been the same, although Libman and Friedberg[2] reported 4 per cent spontaneous cures.

Up to four years ago subacute bacterial endocarditis was considered an incurable disease; the percentage of cures has been changed, and at present over 90 per cent of patients with the disease recover when sufficient penicillin is used. When one meditates on the fact that the early reports stated that penicillin was ineffectual in the treatment of subacute bacterial endocarditis, the importance of carefully recorded laboratory and clinical data becomes obvious.

REPORT OF CASES

CASE 1.—T. W., a 36 year old Negro, was first admitted to Flushing Hospital on March 24, 1944. One week before admission he was awakened during the night with sudden substernal pain. For seven hours the pain was severe, radiating to the right side of the neck; after this the pain gradually lessened. The patient stated that he had had fever, but did not know how high his temperature had been. The past history was significant in that he had had rheumatic fever at the age of 14 years and suffered recurrent pains in the joints for the subsequent three years. Three weeks prior to admission he had "rheumatic pains" in both knees, lasting two weeks.

Examination revealed a well developed muscular man who was in no acute distress. The temperature was 100.2 F. (rectal). No petechiae, Osler nodes or Janeway spots were noted. Examination by percussion revealed the heart to be enlarged on the left side (later confirmed by roentgenogram). The rhythm was regular and the rate 88 beats per minute. A loud harsh systolic murmur was heard over the mitral area transmitted laterally and posteriorly. No diastolic murmur could be detected. The lungs were clear. Liver and spleen were not palpable. No enlargement of the joints was noted, but the knees were tender on motion.

On admission the white cell count was 14,050, with 82 per cent polymorphonuclear leukocytes. The hemoglobin content was 76 per cent (12.9 Gm.). The urine was normal, and the Kahn reaction was negative. The temperature ranged between 100 and 102.6 F. On the fourth hospital day treatment with sodium salicylate in full doses was started, but no drop in temperature or subjective improvement resulted. On April 3, blood culture revealed Streptococcus viridans, 400 bacteria per cubic centimeter.

Since the supply of penicillin was limited and preliminary reports on the treatment of subacute bacterial endocarditis with penicillin were unfavorable, the drug could not be obtained. It was, therefore, decided that sulfadiazine be given while attempts were made to obtain penicillin from the National Research Council. On April 5, the thirteenth hospital day, sulfadiazine therapy was started. The initial dose was 4 Gm., followed by 2 Gm. every four hours for four doses and 1 Gm. every four hours thereafter. The drug was given for sixteen days, and satisfactory levels of sulfadiazine in the blood, ranging from 10.5 to 21.3 mg. per hundred cubic centimeters, were obtained. After forty-eight hours of treatment with sulfadiazine, the temperature dropped to normal and remained so. In spite of the fact that the temperature remained normal for two weeks, two repeated blood cultures revealed S. viridans. Treatment with sulfadiazine was discontinued at this time, and during the following eight days the temperature began to rise slowly. Also during this eight day period, six more blood cultures were reported positive for S. viridans.

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[1] Favour, C. B.; Janeway, C. A.; Gibson, J. G., and Levine, S. A.: New England J. Med. 234: 71-77, 1946.

[2] Libman, E., and Friedberg, C. K.: Subacute Bacterial Endocarditis, edited by H. A. Christian, New York, Oxford University Press, 1941.

Penicillin therapy was started on the thirty-seventh hospital day, nine days after the termination of treatment with sulfadiazine; 200,000 units were given daily for thirteen days, for a total of 2,600,000 units. Within twenty-four hours after treatment with penicillin was started, the temperature dropped to normal again and continued normal for the remainder of his hospital stay. During this thirty-three day period, eighteen additional blood cultures were obtained and all were reported negative.

Following discharge the patient attended the cardiac clinic and remained asymptomatic. On June 27, approximately seven weeks after termination of penicillin therapy, the blood culture again revealed S. viridans.

Because of the difficulty in obtaining penicillin, the patient was sent to the Queens General Hospital, where another course of penicillin was administered. This consisted of 2,500,000 units given in a daily divided dose of 200,000 units, which was almost identical with the previous course, and again the blood cultures became negative. The patient was followed up in the Flushing Hospital Cardiac Clinic after his discharge from Queens General Hospital.

Blood cultures on September 19 and October 3 were positive for S. viridans. The patient was hospitalized in Flushing Hospital, where the third and last course of penicillin was given. The supply of penicillin had been increased considerably, and although the same daily amount, 200,000 units (16,000 units every two hours), was given, treatment was continued for a longer period of time, namely, for thirty-nine days. During this time a total of 7,800,000 units were given. The blood cultures became sterile immediately after treatment was resumed and have remained sterile during the past three years (to date of writing).

Case 2.—W. G., a 53 year old white man, three weeks before admission experienced severe sinusitis accompanied with considerable drainage, fever and pains in the lower part of the back and in the legs. When the fever continued he was hospitalized by his physician. One blood culture was reputedly negative. Penicillin was given, the dosage being 50,000 units every three hours for two days, followed by 30,000 units every three hours for five days. After two days of penicillin therapy the temperature returned to normal, and the patient was discharged four days after the seven day course of treatment with penicillin. Two days after his discharge the fever returned, and he was seen by one of us (C. C.) and admitted to Flushing Hospital on Nov. 25, 1946.

Examination revealed a well developed man with warm skin and in no acute distress. The temperature was 102 8 F. (rectal). No embolic phenomena were discovered. Examination by percussion revealed that the heart was not enlarged; this was confirmed later by a roentgenogram. The rhythm was regular, and the rate was 102 beats per minute. A long rough systolic murmur was heard over the precordium transmitted to the axilla and the neck. The liver and the spleen were not palpable.

On admission the white cell count was 7,050, with 74 per cent polymorphonuclear cells. The urine was normal. Three blood cultures made on the first three hospital days revealed Streptococcus viridans. Sensitivity to penicillin was evidenced with .08 unit per cubic centimeter.

From the day of admission, November 25, to November 29, the daily temperature range was between 99 and 103.4 F. Treatment with penicillin was started on November 29, and within twenty-four hours the temperature dropped to normal. The temperature continued to be normal for the remainder of his hospital stay except for three rises to 101.4, 101 and 102 F. on December 10, 22 and 27, respectively. On several occasions he complained of pains in the tips of his fingers and toes, but other than tenderness to pressure no objective signs were observed. There was no correlation between the three elevations of temperature during treatment and the tenderness of the tips of the fingers and toes.

Penicillin was administered as follows:

Units	Interval (Hr.)	Duration
100,000	3	24 hr.
71,400	3	48 hr.
62,500	3	9 days
41,600	2	28 days
30,000	2	5 days

All penicillin was given intramuscularly. The longest period of treatment was for thirty-seven days, with 500,000 units being given every twenty-four hours. During this period the frequency of injection varied from every three hours for nine days to every two hours for twenty-eight days

COMMENT

The value of in vitro sensitivity tests performed on the isolated organism has been proved. The treatment in the first case presented was carried out while these tests were still in the experimental stage and before their definite value had been demonstrated.

Although the response indicated a sensitive organism, actually the patient conducted a sensitivity test in vivo. The first two courses, when approximately 2,500,000 units of penicillin were given, sterilized the blood stream but not the growth on the cardiac valve The third and last course of penicillin produced a cure, and, although the daily amount was the same, it was given over a much longer period of time than the two previous courses. In this respect observations in this case differ from those usually reported by other authors.[3]

We cannot explain the response of the first patient to penicillin in the prolonged third course, with the same daily dose being used. For best results sufficient daily dosage should be given to raise the level of the drug in the blood to at least five times the sensitivity level of the organism.[1]

There can be little doubt that the first patient is cured. He has been well from a clinical and bacteriologic standpoint for over three years. He has been engaged in a gainful occupation for the past year and a half, working actively in a laundry. He has never had any signs of congestive cardiac failure and is now completely free from symptoms. The question arises as to the length of time which must elapse before a patient can be considered cured. According to Christie[5] relapses usually occur within thirty days after cessation of treatment and are rare after fifty days. Hunter[4b] expressed the belief that if the blood cultures made during the first two weeks after completion of treatment remain sterile one can be reasonably hopeful of cure.

In the first case presented the blood culture again became positive seven weeks after treatment with penicillin was stopped and four weeks after the second course was given.

In the second case, after a brief incomplete course of penicillin was administered at another hospital, the patient responded to a single course with large daily doses. Because of the occasional rise in temperature and pains in the tips of the fingers and toes, treatment was continued for forty-five days. According to Hunter,[4b] who stated preference for large daily amounts for three weeks, some patients continue to have fever, elevated sedimentation rate, leukocytosis and embolic phenomena for several weeks.

It seems reasonable to assume that the second patient also is cured. The last positive blood culture was made Dec. 11, 1946, nine months prior to the date of writing, and the patient has been clinically well since that time.

Penicillin fastness probably does exist, but it has been overemphasized. As more statistics accumulate, one seems justified in stating that the number of instances of resistance to penicillin is small. The first case presented offers a striking example of this fact. Although no increase in daily dosage was used, the organism proved sensitive after the third course of penicillin.

The upper limit of human tolerance to penicillin has not been determined. Hunter[4b] stated that doses as high as 20,000,000 units a day have cured the disease in some patients, when treat-

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3. (*a*) White, P. D.; Mathews, M. W., and Evans, E.: Ann. Int. Med. **22:** 61-74, 1945. (*b*) Bloomfield, A. L., and Halpern, R. M.: Penicillin Treatment of Subacute Bacterial Endocarditis, J. A. M. A. **129:** 1135-1141 (Dec. 22) 1945. (*c*) Dawson, M. H., and Hunter, T. H.: Ann. Int. Med. **24:** 170-185, 1946.
4. (*a*) Favour, Janeway, Gibson and Levine.[1] (*b*) Hunter, T. H.: Mod. Conc. Cardiovasc. Dis., 1946, vol. 15.
5. Christie, R. V: Brit. M. J. **1:** 381-383. 1946.

ment for many months with from 2,000,000 to 10,000,000 units daily has failed. Loewe[6] treated 5 patients with 40,000,000 units per day; 3 of these recovered.

While the penicillin sensitivity test is a relatively simple one and can be performed in all laboratories without difficulty, the same cannot be said of determination of the level of penicillin in the blood. This latter test can be performed when a standard organism is involved. Unless considerable work is being done on this type of disease, it may not be found practical in every hospital to conduct determinations of the levels in the blood. In such circumstances, as in the second case presented, it becomes necessary that arbitrary decisions be made. For sensitivity up to 0.1 unit of penicillin per cubic centimeter a dosage between 500,000 and 1,000,000 units in twenty-four hours usually proves efficacious. According to Dawson and Hunter[5] a daily dose of 300,000 units administered by constant intramuscular drip produced an average serum level of 0.2 unit per cubic centimeter, with a range of values from .025 to 0.8.

HODGKIN'S DISEASE COMPLICATED BY PREGNANCY

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Forty-nine infants borne of mothers with Hodgkin's disease have been reported in the literature.[1] We wish to report a case of a mother with Hodgkin's disease who has borne 2 children, making a total of 51 infants so far reported.

Report of Case

The patient was first seen in the outpatient department of the Goodrich General Hospital on July 3, 1939, at the age of 15 years, with chief complaints of nausea, vomiting and abdominal pain of five days' duration. She had not menstruated. At the age of 11 she had been raped and had contracted gonorrhea which had been successfully treated elsewhere. Findings were negative at this time except for a few red blood cells and white blood cells in the urine.

She was again seen in the outpatient department on Jan. 6, 1940, with similar complaints except that there had been no vomiting and the symptoms had been present only two days. Her temperature was 100 F., pulse rate 100 per minute and respiration rate 25 per minute. There was tenderness over the urinary bladder. Urinalysis showed a few red blood cells and white blood cells. Examination of the blood revealed a leukocyte count of 11,900 with 51 per cent polymorphonuclear cells, 3 per cent stab forms, 33 per cent lymphocytes, 8 per cent monocytes and 5 per cent eosinophils.

Four years later, on March 19, 1944, the patient was seen with the complaint of a growth in the lower part of the left side of her neck. She had first noted this tumor after Christmas in 1943, at which time it was about the size of a hickory nut (1¼ to 2 cm.). At the time of examination the tumor was about 4 cm. in diameter and was freely movable. Her temperature was 99 F., pulse rate 102 per minute; the blood leukocytes were 12,800, the urine was normal and a roentgenogram of the chest and the reaction to a blood Kahn test were negative.

On April 3, 1944, two large left supraclavicular nodes were removed. The pathologist's report on this tissue was: "Lymphoblastoma of the Hodgkin's disease type. Eosinophils were present in unusual numbers. There were numerous Dorothy Reed giant cells and early fibroblastic proliferation." The patient was sent to the University Hospital at Ann Arbor, Mich., for roentgen therapy. At Ann Arbor no other evidence of the disease, except for the left supraclavicular nodes, could be found.

She returned to us on June 2, 1946, for a marriage certificate. On July 16, she was found to be eight months pregnant, and the left supraclavicular nodes were again found to be enlarged. She was advised to return to Ann Arbor for further treatment but did not cooperate well, taking only one of the six proposed roentgen treatments. However the pregnancy progressed normally. The maximum blood pressure reading was 108 systolic and 55 diastolic; the maximum weight, 179 pounds (81.2 Kg.); the urine was normal on all occasions. At 12:45 p.m., on August 23, the patient delivered a normal-appearing, 7 pound (3 175 Gm.) baby girl. The postpartum course was uneventful except for a daily elevation of temperature to 100 F. The mother and baby were discharged from the hospital on September 1.

On December 9, the left supraclavicular nodes were again found to be enlarged. At this time examination of the blood revealed: red blood cells, 4,300,600; hemoglobin, 85 per cent, and white blood cells 11,180, with 41 per cent polymorphonuclear cells, 10 per cent stab forms, 26 per cent lymphocytes, 11 per cent mononuclear cells, 10 per cent eosinophils and 2 per cent basophils. She was advised to return to Ann Arbor for more roentgen therapy.

The patient returned on March 12, 1947, with complaints of bloating of the stomach, nausea and vomiting, difficulty in swallowing and regurgitation of food. She was again pregnant. Her weight was 146 pounds (66.2 Kg.). Fluoroscopic examination of the esophagus, stomach and duodenum during the ingestion of a barium meal on April 4 gave negative results. There were no signs referable to a toxemia of pregnancy.

The second pregnancy was complicated by these gastrointestinal disturbances. At 9:20 p.m., on June 3, the patient delivered a 3 pound, 15¼ ounce (1,800 Gm.) boy. During her hospital stay post partum the mother showed a daily elevation of temperature to, or above, 100 F. The mother left the hospital against advice; the baby was discharged, in good condition, on August 1.

On August 11, the patient returned to us with the complaint of vomiting everything that she attempted to eat. She was 23 years of age and weighed 100 pounds (45.4 Kg.); (her maximum, nonpregnant weight had been 154 pounds [69.9 Kg.]). The patient was returned to Ann Arbor, where she was hospitalized from August 12 to August 24. On a regimen of bed rest, supportive therapy, tincture of belladonna and phenobarbital she improved and gained 12 pounds (5.4 Kg.) weight.

At the present time (March 27, 1948), the patient is still doing her housework and her 2 babies are developing normally.

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[6] Loewe, L.: Personal communication to E. F. Bland. Am. Pract. 1: 504, 1947.

From the Goodrich General Hospital.

*Now resident in orthopedic surgery, The Norwalk Hospital, Norwalk, Conn.

[1] Gilbert, R.: Grossesses au cours de lymphogranulomes traités par roentgentherapie: Sort des meres et des enfants, Schweiz. med. Wchnschr. 75: 53-58 (Jan. 20) 1945. Perrier, H.: Pregnancy in Course of Lymphogranulomatosis, ibid. 75: 1014-1015 (Nov. 17) 1945. Palacios, Costa, N.; Chayanne, F. C., and Zebel Fernandez, O.: Hodgkin's Disease Complicating Pregnancy: Study Apropos of Case, An. D. ateneo, Buenos Aires, 1945, pp. 127-137.

DISPOSABLE, FINE MESH FILTER FOR BLOOD AND PLASMA

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and
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The earliest investigations into the properties of stored blood for purposes of transfusion clearly revealed the necessity for careful filtration of such material before use. That fibrin particles, clumps of white blood cells or disintegrated platelets, and even small blood clots were to be expected in blood stored over a relatively few hours was quickly apparent.[1] However, a few deaths with multiple pulmonary emboli from this material were reported before the extreme importance of adequate filtration of stored blood and plasma was fully appreciated. A common method of filtration in the early days was that of simply pouring the blood through several layers of ordinary sterile gauze.[2] This method, of course, was clumsy, open to contamination and inadequate in removing small particulate matter. Furthermore, considerable cotton lint was always added to the filtrate. Undoubtedly, many of the so-called pyrogenic reactions to transfusions in the early days of blood storage were due to the numerous small particles which were not removed before injection.

After many materials such as rayon, bolting silk,[1] glass beads,[3] "fiberglas" and various grades of metal cloth[4] were extensively tried, it became apparent that "monel" or stainless steel wire cloth filters of adequate dimensions were, on the whole, most suitable. As a rule, 100 to 200 mesh stainless steel wire cloth, formed into closed cylinders and enclosed in a glass housing, were used. The cost of such stainless steel filters was such that repeated use was, of course, necessary, and hence the problem of efficient cleaning of these filters each time after use became difficult and the procedure somewhat costly. Considered opinion from numerous sources indicated that even after scrubbing with a fine brush these filters had to be soaked several hours in concentrated nitric acid, then rinsed several times in fresh, distilled water before they could be considered at all pyrogen free. Obviously, an inexpensive and disposable blood filter, possessing the necessary qualities of fineness, nontoxicity and ease of adaptibility to the present transfusion equipment, has been greatly needed.

Just before the close of World War II, having tried all the materials mentioned, starting with the earliest days of blood banking, and finding none entirely suitable, we were fortunate in procuring a "bakelite"-impregnated filter paper, prepared by the Fabricon Products, Inc., of Detroit. Though this early material did not prove suitable for blood transfusion purposes, nevertheless, the principle of phenolic resin impregnated materials for filtering seemed so clearly applicable to blood filter construction that a search for a more suitable base was begun at once. With salvaged red blood cells from the wartime Red Cross blood donor service, dozens of fabrics were tested. It was finally apparent that cotton cloth constructed with threads of sufficiently small dimension and uniformity, and of a mesh of 90 to 100 squares per inch, when impregnated with heat-hardening "bakelite" resin, was ideal for filtering human blood. Because of the characteristic of polymerizing under heat to a fixed contour, it was possible to pleat such filters, thus more than doubling the filtering surface of a given cylinder and also providing a more efficient filtering contour. All lint contained in the cotton fabric was completely bound by the resin and, indeed, provided an additional barrier to even the smallest particle of fibrin or clot.

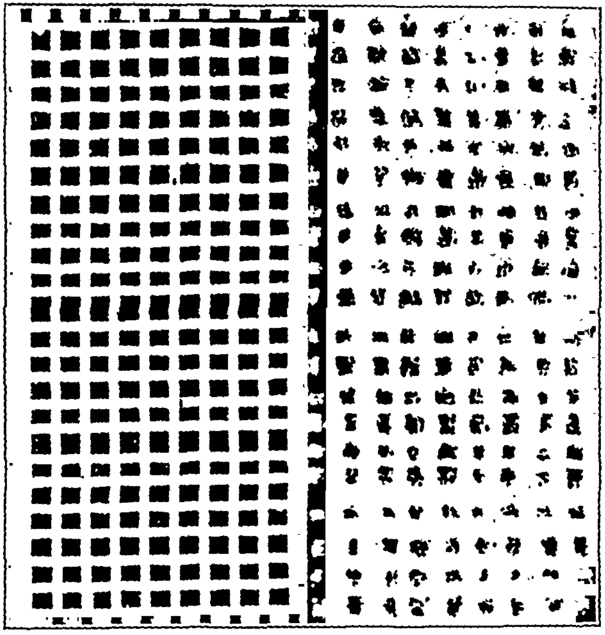

Fig. 1.--Left, standard 100 mesh stainless steel wire cloth. Right, "bakelite"-impregnated cloth used in disposable filter.

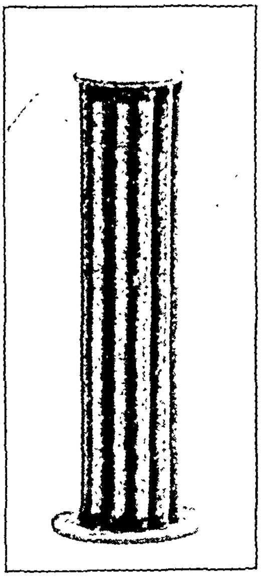

Fig. 2.--Finished "bakelite"-impregnated filter.

While phenolic resins have had numerous applications in medicine and have proved their relative

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1. Fantus, B.: Blood Preservation Technique, J.A.M.A. 111: 317 (July 23) 1938.
2. Wilson, T. I., and Jamieson, J. M.M.: Transfusion with Stored Blood, Brit. M. J. 1: 1207 (June 4) 1938.
3. Vaugh, J. M.: Medical Research Council Blood Transfusion Outfit, Brit. M. J. 2: 1084 (Dec 2) 1939.
4. Cooksey, W. B. Blood Apparatus, Am. J. Surg. 49: 526 (Sept.) 1940.

insolubility in injectible or body fluids and have shown no toxicity by any ordinary contacts with human tissue, nevertheless, before these filters were actually used for transfusions, careful animal testing was carried out by intravenous injection into rabbits of dextrose and sodium chloride solutions in which one of the standard filters had been autoclaved and allowed to stand for twenty-four hours before injection. Several times filters were placed in 1 liter flasks of 5 per cent dextrose and sodium chloride solution, then autoclaved, after which the dextrose and sodium chloride solution was given therapeutically to patients. In none of these tests was there the slightest reaction. To date, over 11,000 transfusions have been given with this filter at Harper Hospital under our supervision, and for nearly two years this filter has been standard equipment in four other Detroit hospitals. We believe it has proved altogether efficient and free from any technical difficulties. Being entirely pyrogen free, disposable and inexpensive, it has been by far the best solution to blood filtration which we have had.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

MERCOCRESOLS.—Mercresin-Upjohn.—A mixture consisting of equal parts by weight of secondary amyltricresol, $CH_3(OH)C_6H_3CH(CH_3)C_3H_7$, and *ortho*-hydroxyphenylmercuric chloride, *o*-HOC_6H_4HgCl. Mercocresols is used in the form of a tincture containing secondary amyltricresol 0.1 per cent and orthohydroxyphenylmercuric chloride 0.1 per cent dissolved in a solution containing 10 per cent acetone, 50 per cent alcohol, and water.

Actions and Uses.—Mercocresols, the combination of cresol derivatives and an organic mercury compound as previously defined possesses germicidal, fungicidal and bacteriostatic properties peculiar to its two component parts. The actions of its two constituents supplement each other, so that the mixture is approximately twice as germicidal for Staphylococcus aureus as the component cresol derivatives alone and seven to ten times as germicidal as the mercury compound alone. The estimated total effect should not be construed to be of that same order for all pathogenic bacteria and should be understood to represent a summation of activity rather than synergistic action of the two components. Its use as a germicide is subject to some of the same shortcomings as ordinary tricresols and organic mercurial antiseptics, particularly with respect to its inability to destroy bacterial spores

Mercocresols is useful in the form of the tincture for external application as an antiseptic for minor superficial wounds or infections and as a prophylactic disinfectant for surgical preparation of the intact skin. Subject to dilutions variously indicated in the paragraph on dosage it is also useful for topical application to mucous membranes and for irrigation of certain body cavities and deep infected wounds.

The toxicity of mercocresols is principally that of the organic mercurial component. Mercocresols is compatible with both acids and alkalies and does not precipitate with the chlorides of the body fluids.

Dosage.—Mercocresols is applied topically in the form of the undiluted tincture (containing secondary amyltricresol 1:1,000 and orthohydroxyphenylmercuric chloride 1:1,000) to all superficial wounds and for surgical preparation of the intact skin. It may be similarly applied to the ear, nose and throat, but dilutions of from 1:5 to 1:20 should be used for irrigation or wet packs applied to these surfaces. In general, from 1:2 to 1:20 dilutions are used for topical application, irrigation or tamponage of inflamed mucous membranes, depending on the site and method employed. For irrigation of deep infected wounds or abscesses dilutions of from 1:5 to 1:10 are recommended; for irrigation, instillations or lavage of the bladder and urethra from 1:10 to 1:20 dilutions should be used. Dilutions of from 1:10 to 1:20 are also employed for instillation in the eye

Tests and Standards.—

Secondary amyltricresol ($C_{12}H_{18}O$ — F W. 178.26) is a mixture of isomeric secondary-amyl cresols obtained by the reaction of cresol and sec-amyl alcohol It appears as a yellowish liquid, which darkens on exposure to light and air and possesses a phenol-like odor It is miscible with the common organic solvents (acetone, alcohol, benzene, chloroform and ether), soluble in solutions of fixed alkalis forming a cloudy solution; slightly soluble in water, and soluble in an aqueous solution of 10 per cent acetone and 50 per cent alcohol, from which it does not precipitate on addition of water. A saturated aqueous solution is neutral or slightly acid to litmus. It gives no color reaction with ferric chloride T.S At a pressure of 5 mm. of mercury not less than 95 per cent distils between 115 and 130 C. The refractive index is 1.5140 to 1.5190 at 25 C. The specific gravity is 0.95 to 0.98 at 25 C.

Orthohydroxyphenylmercuric chloride (C_6H_5OHgCl.—M. W. 329.26) is a white or slightly buff colored, crystalline powder, soluble in alcohol, ether, acetone, mineral acids and in solutions of fixed alkalis, very slightly soluble in water, and soluble in an aqueous solution of 10 per cent acetone and 50 per cent alcohol It melts at 147 to 151 C. The saturated aqueous solution is slightly acid to litmus. A 0.1 per cent solution in diluted nitric acid yields the following qualitative reactions. the addition of ammonium sulfide T.S. gives no precipitate within five minutes, but on warming the solution over a steam bath a black precipitate is formed, on warming with silver nitrate T.S. it yields a white precipitate soluble in excess strong ammonia solution, when treated with an excess of sodium hydroxide T.S. it yields no yellow precipitate (mercuric ion) and the color does not darken (mercurous ion)

Orthohydroxyphenylmercuric chloride gives no color reaction with ferric chloride T.S It yields not more than 0.1 per cent of residue on ignition There is no apparent loss of weight on drying in vacuum over phosphorus pentoxide for twenty-four hours The alcohol-insoluble residue does not exceed 2 per cent of the original sample.

Transfer 300 mg. of orthohydroxyphenylmercuric chloride, accurately weighed, to a 250 cc beaker containing 5 cc. of hydrochloric acid and 150 cc of water; heat this on a steam bath until solution is complete. Saturate the warm solution with hydrogen sulfide and allow it to stand until the precipitated mercuric sulfide has settled. Filter on a Gooch crucible and wash with water, alcohol, ether, carbon disulfide and ether in the order listed. Dry in an oven at 100 to 110 C. for one-half hour and finally cool in a desiccator: the weight of mercuric sulfide multiplied by 0.8622 is equivalent to a mercury content of not less than 60.5 per cent or more than 61.6 per cent.

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Tincture Mercresin (Tinted): 60 cc. (Pistol Grip), 118 cc., 473 cc. and 3.785 liter bottles. A tinted solution of mercocresols 0.2 per cent in a mixture of acetone 10 per cent, alcohol 50 per cent and water.

Tincture Mercresin (Stainless): 118 cc., 473 cc. and 3.785 liter bottles. An untinted solution of mercocresols 0.2 per cent in a mixture of acetone 10 per cent, alcohol 50 per cent and water.

AMINOPHYLLINE (See New and Nonofficial Remedies, 1947, p. 305).

The following dosage forms have been accepted:

GOLD LEAF PHARMACAL CO., NEW ROCHELLE, N. Y.

Solution Aminophylline: 0.5 Gm. in 2 cc. and 20 cc. ampuls and 0.25 Gm. in 10 cc. ampuls.

SMITH-DORSEY CO., LINCOLN, NEB.

Suppositories Aminophylline: 0.5 Gm.

DIPHENYLHYDANTOIN SODIUM (See New and Nonofficial Remedies, 1947, p. 400).

The following dosage form has been accepted:

PREMO PHARMACEUTICAL LABORATORIES, INC., NEW YORK

Diphenylhydantoin Sodium (Powder): 28 Gm., 113 Gm. and 453 Gm. bottles.

DIETHYLSTILBESTROL DIPROPIONATE (See New and Nonofficial Remedies 1947, p. 351).

The following dosage forms have been accepted:

THE BLUE LINE CHEMICAL COMPANY, ST. LOUIS.

Solution Diethylstilbestrol Dipropionate in Oil: 1.0 mg. per cc. in peanut oil, 1 cc. ampuls and 10 cc. vials.

Tablets Diethylstilbestrol Dipropionate: 0.1 mg., 1.0 mg. and 5.0 mg.

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SATURDAY, JUNE 26, 1948

EDITORIAL ANNOUNCEMENT

The absence of the compositors from their work continues. This issue of THE JOURNAL has been prepared in part by the use of Vari-Typer machines.

NUTRITIONAL INFERIORITY OF VEGETABLE PROTEINS

Adopting a technic previously used by them for a study of the immunologic depression due to thiamine, riboflavin and vitamin A deficiencies[1], Guggenheim and Beuchler[2] of the Department of Bacteriology, Hebrew University, Jerusalem, placed groups of young rats on well balanced diets containing varying amounts of different animal or vegetable proteins. After keeping the rats on these diets for four weeks, tests for the bactericidal and phagocytic properties of their peritoneal fluids were made, with parallel determinations of their change in body weight. In a typical experiment, four diets containing 18, 9, 6 and 3 per cent casein, respectively, were used. At the end of four weeks each rat was given intra-abdominal injection of 0.5 cc. of a twenty-four hour broth culture of Salmonella typhi murium. Two hours later peritoneal fluid was withdrawn and the number of leukocytes, phagocytes and extracellular and intracellular bacteria per microscopic field was determined. The number of residual bacteria in the peritoneal fluid increased as the casein percentage in the diet decreased. Thus, in rats fed 18 per cent casein, only 17 extracellular and 13 intracellular bacteria were found, a total of 30 bacteria per field. This increased to a total of 159 per field in the rats fed 9 per cent casein and to 236 per field with rats given as little as 6 per cent. With those fed but 3 per cent casein the count was 318 per field.

From these data the investigators concluded that the bactericidal power of the peritoneal fluid is reduced by even a moderate degree of casein deficiency. In severe states of deficiency a significant reduction in phagocytosis was also found. The anti-infectious titer of the peritoneal fluid is roughly parallel with increase in growth. Maximum growth and maximem titer were both recorded with rats fed 18 per cent casein; decreased growth and titer with those fed 9 and 6 per cent; a slight loss of weight and minimum titer with rats fed but 3 per cent casein.

In a second test groups of recently weaned rats were placed on diets in which 9 per cent of five other proteins (eggs, meat, soybean, peanut and maize) were substituted for casein. The results showed that both the growth-promoting power and anti-infectious effect of either 9 per cent egg or meat protein is approximately equal to that of 18 per cent casein. Both egg and meat proteins, therefore, have apparently twice the anti-infectious power of casein. With 9 per cent soybean protein the effects were approximately the same as those with 9 per cent casein. Peanut protein was slightly inferior, giving results equivalent to those of but 6 per cent casein. Maize protein was even poorer, 9 per cent maize protein giving results as low as that of but 3 per cent casein.

These vegetable proteins did not affect both anti-infectious titers equally. Thus the nutritional deficiency caused by a diet containing but 9 per cent peanut protein reduced the phagocytic apparatus more severely than it did the humoral antibody. In contrast rats kept on either egg or meat protein have a low phagocytic index, compensated for by a heightened humoral bactericidal titer.

No theory is as yet suggested to account for the immunologic inferiority of vegetable proteins.

INTERNATIONAL MENTAL HEALTH

The World Congress on "Mental Health and World Citizenship" scheduled for August 1948 in London will discuss (1) problems of world citizenship and good group relationship; (2) the individual and society; (3) family problems and psychologic disturbances; (4) planning for mental health organization, training propaganda, and (5) mental health in industry and industrial relations. Committees and discussion groups have been established composed of psychologists, psychiatrists, sociologists, educators, anthropologists and members of other technical groups in the human sciences. The object of the Congress is to find areas

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1. Guggenheim, K., and Buechler, E.: J. Immunol. 54: 349, 1946.
2. Guggenheim, K., and Buechler, E.: J. Immunol. 58: 133, 1948.

on which scientists from all over the world can agree in defining some of the basic principles of mental and social health. Educational work directed along lines of agreement should then be a reasonable outcome.

Symptoms and signs of lack of mental health in the United States as compiled by Menninger and summarized in THE JOURNAL[1] can be multiplied by the total number of nations. These symptoms of personal insecurity, prejudice, hostility, irrational and irresponsible behavior must reflect themselves to an extent in international relations as these are conducted by persons who bring everything they are into everything they do. The subjective background of personal qualities which now determines political leadership needs to be subjected to critical impartial psychologic study.

The problem of mental health, whether personal, family, community, national or international, appears to revolve about security and responsibility. Repeatedly, however, examples are cited wherein too much security from above has led to irresponsibility in the secured. Security on a personal or national level cannot protect the individual from the mental distresses of international insecurity as expressed by war or threat of war. A moral rebirth in personal responsibility is necessary particularly among those charged with the conduct of international relations.

The increasing numbers of mentally and emotionally disturbed patients in clinics and hospitals are in part a reflection of the present low standards of world mental health. The scientific method itself has in a sense contributed to present conditions of mental health by its relentless exposure of the objective half of truth and only recently recognition of its subjective counterpart.

Evidence of mass insecurity and mental disturbance among hundreds of thousands of our own citizens as a result of mental stresses of the recent war indicates the probable mental hazards of atomic and biologic warfare. Previous to the war psychiatrists attempted to treat persons for abnormal reactions to normal situations. During the war essentially normal reactions to highly abnormal situations were met. William Menninger[2] emphasizes the continuation of these stresses today: "The condition of the world now places many people in a continuously abnormal situation to which they are reacting normally even though by all previous standards their behaviour is pathological. In such a turbulent world one might legitimately ask, What is a normal reaction?'

Fortunately the present threat to mental health appears concurrently with the development of the sciences of psychiatry, psychology and sociology, to the point where preventive advice of value is available and applicable in mass situations.

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[1] Situation in Psychiatry, Miscellany, J.A.M.A. 137:212-213 (May 8) 1948.

[2] Menninger W. C.: Psychiatry; Its Evolution and Present Status, Ithaca, N.Y., Cornell University Press, 1948.

Current Comment

CANCER IN DIABETIC PERSONS

Review of the literature having indicated an apparent association between cancer and diabetes mellitus, Jacobson[1] made a statistical study to determine this point. Recent reports by Marble,[2] Ellinger and Landsman[3] were in definite agreement that clinically physicians are concerned with diabetic patients in whom cancer later develops rather than a group of patients with malignant disease in whom diabetes develops. As relative duration of diabetes is much longer, this appears to be a reasonable conclusion. The subject was attacked in two phases—mortality data from the "universe of dead persons" and morbidity data from the "universe of living persons." Mortality data for analysis were relatively easy to obtain. Of all deaths in the United States in 1940, 11.17 per cent were attributed to cancer. This factor is changed in the "universe of living persons," in that cancer is reported to have caused the deaths of 0.12 per cent of the population of the United States in 1940. From a special tabulation of associated causes of death in the United States in 1940 it was noted that cancer is reported in 11.6 per cent of nondiabetic persons and only 4 per cent of those with diabetes. Cancer of the digestive organs and the peritoneum, including the pancreas, is reported twice as frequently for the nondiabetic group. This does not indicate dissociation but is probably due to the influence of incomplete reporting of associated diagnoses on death certificates, although such effect obviously cannot be accurately demonstrated. Special mortality data for New York city report cancer less frequently among diabetic persons than among nondiabetic persons. This again does not show true dissociation. A classic former example of such apparent dissociation was obtained from necropsy data on association between diagnoses of of future or new members of the professions and advice given to them individually and collectively reflect a true picture of the importance, responsibilities and publicly controlled capacities of government services to accomplish their prescribed missions and objectives; *(d)* that advice and support directly to the chief medical officers of the services is of continuing and positive nature leading to feasible and realizable improvements of the services; *(e)* that adequate indexes and factors applicable to all medical and related functions essential for the civil population are rapidly developed in such form as to permit comparison with military logistic data, and that suggestions toward improvements in the latter be offered with a view to obtaining universally comparable data, and *(f)* that all of the foregoing be based on profound observance of need for balancing all medical resources with all medical needs in a national emergency while preserving maximum personal liberty and individual freedom of action compatible with the good of the whole population established within an ordered pattern.

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[1] Jacobson, H.: A Statistical Study of Cancer Among Diabetics, Milbank Memorial Fund Quarterly, 26:90-118 (Jan.) 1948

[2] Marble, A.: Diabetes and Cancer, New England J. Med. 211:339-349, 1934.

[3] Ellinger, F., and Landsman, H.: Frequency and Course of Cancer in Diabetics, New York State J. Med. 44:259-265, 1944.

REAR ADMIRAL M. D. WILLCUTTS (MC), U.S. Navy: The Department of the Army informs me that its authority to order reserves to active duty has expired. They can request reserve officers and enlisted men to volunteer, but cannot force them to serve. An act of Congress states that they cannot be called to active duty for more than fifteen days a year against their will except in time of national emergency, declared by Congress itself. Nor can the Navy call their reserves to active duty without an order from the President or Congress. The act of Congress authorizing the Naval Reserve states that these officers and men can be ordered to active duty in time of war or when the President considers there is a national emergency. The majority of naval reserve officers went into inactive status when they left the service, retaining their commissions, very few resigning. During a national emergency the President has the power to call the National Guard into federal service; this does not need the approval of Congress. The National Guard cannot be sent outside the United States unless the President obtains specific approval from Congress or unless individuals in the National Guard volunteer for overseas service.

Should the President proclaim a national emergency, the consensus is that the Army, Navy and Air Force could hold their active enlisted men beyond the expiration of their present tours of duty. Otherwise, unless they voluntarily signed up for further service, they would have to be released at the end of their enlistments.

The three services have a total authorized strength of 1,732,000 officers and men. The Army has an authorized strength of 669,000 officers and enlisted personnel; the Navy is authorized 500,000 men plus 52,000 officers; the Marine Corps, 100,000 men and 10,000 officers, and the Air Force, 337,000 enlisted men and 61,000 officers. The President has stated that this authorized strength must be reestablished and has recommended reenactment of the Selective Service Act. The Secretary of Defense and the military chiefs urge that the authorized strength for the Armed Forces be increased to 1,734,000 with provision for an additional 181,000 should legislation for universal military training be enacted, for a grand total of 1,915,000.

The Navy Medical Corps is seriously involved. The authorized strength of medical officers, based on full Navy strength, is 4,315. Budgetary limitations have reduced the active strength of the Navy to a level requiring 3,130 medical officers in order to fill essential billets. There are, operative census, 2,856. Of this number, 1,436 are reserve medical officers, 500 of them V-12 men whose two year obligated service is expiring and who will thus be released to inactive reserve status within the next sixty days. A remaining larger group is due to be released in July 1949.

The Bureau of Medicine and Surgery would like considered opinion on whether these excellent young medical officers with two years' naval training should now be released. In view of their country's need, should their release be deferred at least until new medical classes may be ordered up and trained or the older men be given an opportunity to redon their uniforms? Just as hostilities ceased in Japan atomic energy was introduced, harnessed as a high explosive weapon capable of mass destruction. At Hiroshima and Nagasaki I was deeply impressed with the medical personnel losses. Of three hundred resident physicians in Hiroshima, two hundred and sixty were killed or severely injured. Seventy-five per cent of the total nurses, orderlies and trained first-aid workers were immediately wiped out. Not one hospital was left in condition to shelter patients; practically all medical equipment was destroyed. The bombs at Hiroshima and Nagasaki are now known as baby bombs. Scientists developing the atomic bombs claim that bombs one thousand times more powerful are now possible. These bombs may cause death 500 miles beyond the actual target area. It has been estimated that a single bomb per city, dropped over twenty of our great cities, could cause the death of 20,000,000 persons.

Modern war will mean an immediate all-out national effort. Physical standards for recruitment may need to be modified, for every ounce of manpower will be necessary. Those with chronic disorders, even of the psychiatric type, must fight or work. With the advent of specialized weapons a constant prewar status must be maintained, a defense against a treacherous enemy's first blow.

The National Security Act of 1947 declared that it is the "intent of Congress to provide a comprehensive program for the future security of the United States, to provide for the establishment of integrated policies and procedures for the departments, agencies and functions of the government relating to the national security.'' Two high level agencies were provided for the purpose of " coordination for national security," namely, the National Security Council and the National Security Resources Board.

The following recommendations have been made: *(a)* that a National Emergency Medical Council be established as a continuing function of the national government; *(b)* that such a council be an agency of the National Security Resources Board, to which the council would be directly responsible; *(c)* that the council be comprised of representatives from the several recognized national medical and allied organizations and associations; *(d)* that the members of the council function on a part time basis; *(e)* that the council be charged, under the National Security Resources Board, with the consideration of policies and the preparation and maintenance of plans for use in the event of acute national emergency for: (1) mobilization and most effective utilization of the total medical and allied resources of the Nation; (2) the allocation of medical and related personnel to best meet the civil and military needs; (3) coordination of provisions for mutual medical aid between communities and municipalities, and (4) coordination of civilian and military medical services on a national scale under the various wartime situations which may be encountered; *(f)* that the foregoing, or similar action designed toward the same end, be initiated without delay to achieve the primary objective of assuring the nation's readiness to provide, with the limited total medical resources which will be available, the best possible over-all medical coverage under all contingencies of an actual wartime national emergency.

The medical personnel of the Armed Forces are being trained in the medical aspects of new and powerful weapons. Civil medicine must do likewise. Medical schools and postgraduate medical courses should stress these subjects, so that every American physician may be alerted to these new war hazards.

Washington Letter

(From a Special Correspondent)

June 25, 1948.

President Signs Bill Authorizing Federal Heart Research

President Truman signed the bill authorizing the U. S. Public Health Service to support research on diseases of the heart. Establishment within the health service of a National Heart Institute, to aid cardiac disease research through grants, fellowships and similar means, is provided. As the bill carried no funds, Federal Security Administrator Oscar R. Ewing and Dr. Leonard Scheele, Surgeon General of the health service, asked a Senate appropriations subcommittee to include $6,730,000 in the last big deficiency bill. Congress had already appropriated $2,644,088 for studies of cardiac disease in the next fiscal year, but the extra funds were sought to implement the new law setting up the National Heart Institute.

Condemns Practice of Attaching Riders To Appropriations Bills

The electorate will decide next November when the vote is taken for the presidency on who wins the end-of-session row between President Truman and the Republican-controlled Congress; yet the Chief Executive aroused considerable favorable comment in the Capitol for criticizing the practice of attaching legislative riders to appropriations bills. Observers say that the President acted wisely in returning the billion dollar Social Security bill, which provides funds for this federal agency, because of the riders. Congress, in turn, was accused of "politics" in overriding his veto of this legislative item.

Admiral Solberg Nominated Navy Research Chief

President Truman nominated Rear Admiral Thorvald A. Solberg, aged 52, to be the U.S. Navy's new chief of research. He is an expert on atomic energy. Named to a three year term, he succeeds Admiral Paul F. Lee, who is retiring soon. Admiral Solberg directed preparation on the ships used as targets for atomic bomb tests at Bikini Atoll in the Pacific. He later supervised inspections to determine effects of the bombs. He has, since 1936, served as Navy member of the Military Liaison Committee of the U.S. Atomic Energy Commission. He is a native of Madison, Wis., and his home is in Sand Point, Idaho.

Committee Investigates Civil Service "Physical Disability" Firings

The House Civil Service Committee is investigating charges against various federal departments and agencies of alleged truthless firings of employees on false charges of "physical disability." Committee staff members charge that government workers, apparently in good health, have been summarily dismissed on disability grounds. Committee Chairman Rees is directing the probe.

Dr. Detlev W. Bronk Elected to Royal Society

Washington friends have tendered congratulations to Dr. Detlev W. Bronk on his election to the Royal Society of London. He is foreign secretary of the National Academy of Sciences, chairman of the National Research Council and director of the Johnson Research Foundation, University of Pennsylvania.

Medical Legislation

Louisiana

Bills Introduced.—H. 19 proposes the creation of a state medical laboratory to make such medical tests, examinations, experiments or other work as may be assigned to it by the director of the Louisiana State Department of Health. H 58 proposes the creation of a state hospital board to contract or enter into agreements with privately owned hospitals and other institutions for the care and treatment of indigent or destitute sick persons. At least two members of said board must be capable and reputable physicians engaged in the general practice of medicine in the state. According to the proposal the care to be given to indigents should include necessary outpatient care and treatment after hospitalization as well as proper dental, medical, surgical and other treatment. H. 61 proposes the organization and establishment of a state tuberculosis commission to provide for the suppression of tuberculosis within the state and means for the isolation, care, cure and treatment of persons suffering therefrom. H. 271 proposes the creation of a state board of chiropractic examiners and defines chiropractic as the art and science of locating and adjusting the articulations of the spinal column and adjacent tissue. H. 285 proposes to authorize associations created to furnish hospital care to provide also for the furnishing of surgical and medical benefits. H. 287 proposes an appropriation to the state hospital board for conducting a hospital survey and construction program and a mental health program in the state. H. 305 proposes that all persons making application for a license to be married must first be examined as to the existence or nonexistence of a venereal disease, the examination to include a recognized blood test for syphilis, such examination being made by a physician duly licensed to practice in the state. The proposal would further provide that the required blood test for syphilis may be made in any laboratory, public or private, which is generally recognized by the medical profession of the state. H. 315 proposes an appropriation of $300,000 to the Louisiana State Board of Health to be used to match federal and local funds to provide for constructing and equipping public health centers, including administrative offices, laboratories and clinics. H. 430 proposes, among other things, that corporations which issue promises to members to provide for the attendance of a physician and surgeon and to furnish hospitalization, drugs, etc in the event of sickness or physical disability shall be deemed to be engaged in the business of service insurance on the stipulated premium, cooperative or assessment plan. H. 457 proposes to authorize domestic industrial insurers, domestic service insurers and domestic life, health and accident insurers on the cooperative or assessment plan to issue policies providing for ambulance benefits. S. 13 proposes the creation of a Louisiana Hospital Commission for the survey of the need for additional hospital facilities and the development and administration of a hospital planning and construction program. The proposal would require the appointment of a state advisory council and would designate the Commission as the sole agency to institute and conduct a mental health program in the state in compliance with the provisions of the National Mental Health Act and to accept and expend federal funds in accordance with the requirements of any federal hospital survey and construction act. S. 155 proposes to prohibit the sale of potassium bromate and all other heavy metal bromates except on a prescription of a duly licensed medical doctor. S. 178 proposes to require manufacturers of preparations used for hair waving purposes to print certain warning material on the label of each container.

GOVERNMENT SERVICES

ARMY

KOREAN INTERNS IN FOUR ARMY HOSPITALS

Following examinations held in May, sixteen Korean doctors, graduates of recognized hospitals, will soon begin serving internships at four Army hospitals maintained by the American occupation forces in Korea, Only doctors with a knowledge of English were eligible for these competitive examinations. Of the thirty-eight applicants, four are to be each assigned to the 34th General Hospital, Seoul; 382nd Station Hospital, Camp Ascom; 377th Station Hospital, Seoul, and the 71st Station Hospital at Pusan, where they will be given a one year rotating service. Among those cooperating in furthering this new step was Dr. John D. Bigger, a graduate of the University of Kansas and a missionary who has practiced Medicine in Korea for thirty-seven years. Dr. Bigger was a Japanese prisoner for six months at the start of the war, then went to Manila to engage in relief work, coming back to Korea in 1945 to become a civilian employee of the Department of the Army.

Koreans taking the examinations for interns in U. S. Army Hospitals at Seoul. Standing from left to right are Dr. C. C. Choi, deputy director, Department of Public Health and Welfare and Dr. John D. Begger.

PATHOLOGIST PROMOTED TO BRIGADIER GENERAL

The Senate on April 26 confirmed the appointment of Col. Raymond O. Dart, director, Army Institute of Pathology, as a permanent brigadier general in the Medical Corps of the Army. General Dart, a native of Kansas, is a graduate of the University of Kansas and of Rush Medical College; he interned at the Presbyterian Hospital, Chicago, and since entering the Army in 1917 has spent most of his service in the field of pathology. He served in Europe in World War 1 and for a time was commandant of the 105th General Hospital in World War II, surgeon of the Brisbane, Australia, base and New Guinea advanced section, and deputy chief surgeon in the Pacific Area. He has been awarded the Legion of Merit and the Bronze Star.

GRADUATE COURSE IN PHOTOMICROGRAPHY

The Army Institute of Pathology announces that preliminary arrangements have been made by the Army Medical Illustration Service and the United States Department of Agriculture to start a postgraduate course in photomicrography at the Institute of Pathology Photographic Laboratory, 7th Street and Independence Ave., Washington, D. C. The opening date probably will be the first week in September.

PERSONALS

Col. J E. Ash, Scientific Director, American Registry of Pathology, with offices at the Army Institute of Pathology, conducted a three day postgraduate seminar on "Tumors of the Genital Urinary Tract" at the University of Texas, Galveston, in May.

Dr. Hans F. Smetana of the Army Institute of Pathology discussed granulomatous reactions in regional enteritis before the Washington, D. C., Society of Pathologists, May 25.

Col. William A. Smith, recently post surgeon at Fort Jackson, South Carolina, who retired from active service May 31, has accepted a position with the North Carolina board of health's tuberculosis division at Raleigh.

NAVY

VIRUS PRODUCED IN ABSENCE OF HOST CELLS FOR FIRST TIME

The Surgeon General has announced the first successful experiments on the production of a virus in the absence of the host cells (bacteria). The experimental work was described by Dr. Albert P. Krueger, scientific director, Office of Naval Research, Task V on Airborne Infections at the University of California. Dr. Krueger, a reserve captain in the Navy Medical Department, was awarded the Legion of Merit for outstanding work during the war as commanding officer of the Navy's Research Unit No. 1 at Berkeley, Calif. Scientists have been trying for years to make a virus reproduce apart from living cells but, the announcement states, it was never done until Dr. Krueger's recent work. This discovery opens up a new aspect of virus research. The particular virus (phage) in question, which was first discovered in 1915, is a highly complex nucleoprotein found in soil, polluted rivers and within the human body. Dr. Krueger began his experiments twenty years ago and attempts to extract the cellular substance, which rapidly reacts with phage to form more phage, always ended in failure until early in 1948. This research project, an account of which will appear in the July *United States Naval Medical Bulletin*, was supported by the Office of Navy Research and the Bureau of Medicine and Surgery.

Safety in Operating Rooms

Lieut. A. W. Kenny, safety officer, returned May 15 from a three week safety survey of naval hospitals in Corpus Christi and Houston, Texas, and Pensacola, Key West and Jacksonville, Fla. He was appointed to serve on a committee to study the hazards from explosions of anesthetics in operating rooms. The committee comprised representatives from the National Bureau of Standards, the Public Health Service, the Veterans Administration, Navy Department, Bureau of Mines and the Public Buildings Administration.

NEW MEDICAL OFFICERS

The following reserve officers who have been on active duty have accepted appointments in the regular Navy Medical Corps: Lieuts. (jg) John B. Miller of Fairmont, Minn; Lewis G. Richards Jr., of Roanoke, Va.; Robert E. Rowand of Swarthmore, Pa.; Robert W. Sharp Jr., of Grenada, Miss., and Arthur J. Wilets of Burlington, Wis.

The following recent graduates of medical schools have accepted appointments as lieutenants (jg), MC, in the Regular Navy and will serve their internships as follows:

John J. Dempsey, Upper Darby, Pa., to the Naval Hospital, Bethesda, Md.

Robert F. Dykhuizen, Indianapolis, to the Naval Hospital, Long Beach, Calif.

William A. Fisher, Lykens, Pa., to the Naval Hospital, Bethesda, Md.

Rudolph H. Hand, Greenville, S.C., to the Naval Hospital, Portsmouth, Va.

Clarence A. Harvey, Santa Ana, Calif., Naval Hospital, Oakland, Calif.

Samuel W. Johnson Jr., Norfolk, Va., Naval Hospital, Philadelphia.

James S. Ketcham, Rossville, Ind., Naval Hospital, San Diego, Calif.

Ernest W. Klatte, Indianapolis, Naval Hospital, Long Beach, Calif.

Bennie J. Massey, Palatka, Fla., Naval Hospital, Jacksonville, Fla.

Robert F. Neal, Elmwood, Tenn., Naval Hospital, Bethesda, Md.

Vincent P. Russo, Bronx, N.Y., Naval Hospital, St. Albans, L.I., N.Y.

Delmer J. Pascoe, Glendale, Calif., Naval Hospital, Long Beach, Calif.

Arthur C. Smid, Omaha, Neb., Naval Hospital, Great Lakes, Ill.

Henry A. Sparks, Los Angeles, Naval Hospital, Long Beach, Calif.

Robert E. Suer, Cincinnati, Naval Hospital, Long Beach, Calif.

Edward A. Thompson, Marshall, Va., Naval Hospital, Bethesda, Md.

Robert W. Watson Jr., Burlingame, Calif., Naval Hospital, Chelsea, Mass.

PERSONALS

Rear Admiral Lamont Pugh has been elected a member of the Executive Committee of the National Board of Medical Examiners.

Capt. Charles G. McCormack and Comdr. Ben Hollander, San Francisco, both on the retired list, are being recalled to active duty and will be assigned respectively to the Bureau of Medicine and Surgery, Washington, D. C., and the Mare Island Naval Shipyard, Vallejo, Calif.

Comdr. Charles A. Castle, MCR, of Watertown, S.D., and Lieut. (jg) Lynn E. Anthony, MCR, of Macon, Ga., are returning to active reserve status for a period of one year and will be assigned respectively to the Naval Hospital, Great Lakes, Ill., and the Naval Hospital, Dublin, Ga.

Capt. Joseph L. Schwartz, recently in command of the Naval Hospital, Brooklyn, N. Y., has been transferred to the Bureau of Medicine and Surgery, Washington, D. C., as editor of the *Naval Medical Bulletin*.

Rear Admiral John P. Owen (MC), who retired from active duty May 1 at his own request after thirty-one years of active service, has accepted a position as medical advisor to the Superior Court of San Francisco and San Francisco County.

Ensign Yoshiko Tanigawa of Minneapolis is the first nurse of Japanese ancestry to be commissioned in the Nurse Corps of the U.S.Navy, having been sworn into service March 22. Ensign Tanigawa graduated from the Nurses Training School at St. Barnabas Hospital, Minneapolis.

Capt. G. N. Raines, head, Neuropsychiatric Department, Naval Hospital, Bethesda, Md., has been recommended for additional psychoanalytic training at the Washington School of Psychiatry. Capt. Edward P. Kunkel, executive officer, Naval Hospital, San Diego, Calif., has been nominated for duty as medical officer in command of the Naval Medical Center, Guam, Marianas Islands.

VETERANS ADMINISTRATION

DR. MORRISON APPOINTED CHIEF CONSULTANT IN SURGERY

Dr. Paul B. Magnuson, medical director of the Veterans Administration, announces the appointment of Dr. William R. Morrison, Boston, as chief consultant in surgery. Dr. Morrison, who is one of the founders of the American Board of Surgery, recently completed a nationwide tour of veterans' hospitals; he will devote a major portion of his time to the surgical consultant's work. He is a graduate of Harvard Medical School, served in France in both World Wars and for many years has been associate chief examiner in surgery for the National Board of Medical Examiners at Boston and a teacher of anatomy and surgery at Harvard, Tufts College Medical School and Boston University School of Medicine.

SYPHILIS RECORDS

The chief medical director of the Veterans Administration, Dr. Paul B. Magnuson, writes that the Veterans Administration has in its custody the syphilis records of Army personnel who were treated for this disease while in active service and in many cases can procure data from the syphilis records of other than Army personnel. Résumés of these records are available to physicians who are treating such veterans, providing the veteran himself authorizes release of the data. Requests for such a résumé, accompanied by authorization for its release dated and signed by the veteran, should be addressed to the Dermatology and Syphilology Section, Veterans Administration, Munitions Building, Washington 25, D.C. It is important that the veteran's serial number and his date of enlistment and discharge, rank and organization be included.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Cyclotron Begins Operation.—*The cyclotron at the* University of California, Los Angeles campus, began operation early in June. It has been moved from the Berkeley campus and reassembled with double its original capacity. The cyclotron will be used to produce radioactive isotopes for medical research and for experiments in nuclear chemistry.

Personal.—Dr. John C. Ruddock, Los Angeles, reported to the Bureau of Medicine and Surgery, U. S. Navy, Washington, D.C., for ten day's temporary duty during June with the Naval Reserve Policy Board. Dr. Ruddock, a Captain in the Naval Reserve, was Chief of Medicine at the Naval Hospital, San Diego, during the war.

COLORADO

Dr. Sudan Heads Division of General Practice.—The University of Colorado Medical Center, Denver, will inaugurate for the September term its division of general practice in the department of general medicine at the medical school. Dr. Archie C. Sudan, Denver, first winner of the American Medical Association general practitioner award, will head the new division on a voluntary basis, and will be assistant professor of general practice. The division of general practice will screen all admissions both to the Denver General and the Colorado General Hospital. New clinic patients will get a thorough uniform general examination by general practice personnel on admission.

CONNECTICUT

Cooperative Project on Lobotomy.—The Connecticut State Hospital at Middletown, the Fairfield State Hospital, Newtown, The Hartford Institute of Living and the Yale University School of Medicine, department of psychiatry, are making a study of 200 patients who have been subjected to prefrontal lobotomy as a means of treatment of mental illness. This program has been called the Connecticut Cooperative Project on Lobotomy. Dr. Frederick C. Redlich, assistant professor of psychiatry at Yale, stated in a recent broadcast that of the 200 patients, all of whom might have been considered hopeless cases, 8 per cent were free of symptoms a year after the operation; one fifth of the number were able to hold jobs and one half of them could be discharged from institutions. Only 10 per cent were unimproved or got worse. The pioneer experimental work in developing the operation, he said, was done at Yale by Dr. John F. Fulton, professor of physiology, and his associate, Carlyle F. Jacobsen, Ph.D. Later Dr. Egas Moniz of Lisbon, Portugal, developed technics for performing the operation on human beings. Since then several thousand Americans have undergone lobotomies in psychiatric centers in this country.

Most patients subjected to lobotomy at Yale have severe schizophrenia and have not reacted favorably to psychotherapy and shock treatment and are persons for whom there seems no hope by any other therapeutic procedure. We operate, Dr. Redlich said, also on patients with severe and chronic depression who do not react to other procedures and occasionally on patients with extreme compulsive-obsessive reactions. He did not credit the favorable results solely to the operation, as every patient on whom the operation has been done needs psychotherapy and the help of a social worker to adjust, and often the quality of these measures determine to a large degree how good the adjustment of the patient is going to be.

FLORIDA

Meeting of Blood Banks.—At the second annual meeting of the Florida Association of Blood Banks in Miami, May 7-8, papers were presented on the Rh and Hr factors by Drs. Alexander S. Wiener, Brooklyn, Philip Levine, Newark, N. J., Ernest Witebsky, Buffalo, and Louis K. Diamond, Boston. Florida's blood bank organization differs from some other state programs in that there is no central control, but there is uniformity of technic and reciprocity among the banks. Four central banks have been organized with others in the process of organization, as well as a number of sub-banks, which will operate under the supervision of the central banks. The next annual meeting will be in Tampa in February 1949.

IDAHO

State Meeting at Sun Valley.—The Idaho State Medical Association will hold its annual meeting July 6-8 in Sun Valley with headquarters at the Challenger Inn and under the presidency of Dr. Albert B. Pappenhagen, Orofino. The following members of the faculty of the University of Minnesota Medical School, Minneapolis, will present the scientific program: Dr. Owen H. Wangensteen, professor of surgery; Dr. Cecil J. Watson, professor of medicine; Dr. Leonard A. Lang, chief of obstetrics and gynecology, Minneapolis General Hospital; Dr. Donald W. Hastings, professor of psychiatry and neurology; Dr. Edward P. Burch, clinical assistant professor of ophthalmology. Round table discussion groups for luncheon on Tuesday, Wednesday and Thursday have been arranged with one of the guest speakers presiding at each table. The annual banquet will be held July 7 at eight p.m.

ILLINOIS

Health Association Elects Nurse as President.—At the annual conference of the Illinois Public Health Association in Chicago, April 15, Maude B. Carson, chief, division of public health nursing, Illinois State Department of Public Health, succeeded Dr. Edward A. Piszczek, director of the Cook County Health Department, as president. Mr. B. K. Richardson, senior administrative officer of the state department of public health, was named president-elect, and Harold M. Cavins, Ed.D., of the Eastern Illinois State Teachers College, Charleston, was reelected secretary treasurer.

Chicago

Personal.—Dr. Sol R. Rosenthal, assistant professor of bacteriology and public health, University of Illinois, Chicago, left June 12 to attend the First International Congress on BCG Vaccine in Paris June 18-23. He served as vice president of a section on human vaccination.

Visiting Professor.—Dr. Alexander T.M. Wilson, director of the Tavistock Institute of Human Relations, London, England, will be a member of the summer session faculty of Northwestern University beginning June 28 and will conduct his courses under joint sponsorship of the departments of psychology and sociology of the College of Liberal Arts and of the School of Speech. He will also give several public lectures, one on "Current Problems of Education in England" to be delivered July 15. Dr. Wilson received his medical degree at the University of Glasgow, Scotland, 1940. He is a fellow of the Royal Society of Medicine and is on the staff of the Middlesex Hospital in London.

MASSACHUSETTS

Hospital Quarantined for Diphtheria.—The State Mental Hospital, Foxboro, was quarantined May 30 after the outbreak of 5 cases of mild diphtheria among the 1,200 patients.

Society News.—At the annual meeting of the Massachusetts Trudeau Society in Boston in April, Dr. Donald S. King, Brookline, was elected president and Dr. Edward J. Welch, Boston, secretary treasurer..

Appoint Professor of Dermatology.-Harvard Medical School and Massachusetts General Hospital are beginning an intensive program of research on skin diseases. The program, financed part by the Rockefeller Foundation, will be based on cooperation between dermatologists and experts in general medicine. To develop this program, Dr. Chester N. Frazier, head of the department of dermatology at the University of Texas Medical Branch, Galveston, has been appointed professor of dermatology at Harvard and chief of the dermatologic service at the Massachusetts General Hospital. He will organize a new department of dermatology at the medical school and will lead the research and clinical program at the Massachusetts General Hospital. Dr. Frazier, a graduate of Indiana University School of Medicine, has spent twenty years in China, teaching at the Peiping Union Medical College, doing research in skin diseases and training Chinese doctors in the treatment of skin diseases and syphilis. He has also taught and practiced at Indiana University and at Johns Hopkins University School of Medicine, Baltimore.

MINNESOTA

O'Brien Memorial Professorship.--The Minnesota Division of the American Cancer Society, Inc., has established a full professorship in cancer research at the University of Minnesota Medical School, Minneapolis, in memory of Dr. William A. O'Brien, president of the division for ten years before his death. A $5,000 fellowship, established by the division three years ago and held at present by Dr. Robert A. Huseby, will be extended to the full professorship.

Newspaper Award to State Society President.—Dr. Archibald E. Cardle, Minneapolis, president of the Minnesota State Medical Association, on June 9 received the *Minneapolis Star and Tribune* Award for leadership in Minnesota. The award consists of a watch pendant inscribed "For Leadership in Minnesota" and a certificate which reads: "In Recognition of Leadership in Minnesota. Whereas A.E. Cardle as President of the Minnesota State Medical Society has given a service to Minnesota that has added to this state's supremacy as a place in which to live and work, has brought additional respect to his organization and has enhanced his own prestige as a citizen, the *Minneapolis Star and Tribune* presents to him this Leadership Award."

MISSISSIPPI

Medical Rural Scholarships.—Scholarship awards have been granted to fourteen prospective Mississippi doctors by the board of medical education. These students agree to return to practice in rural Mississippi. The program, inaugurated in 1946, has granted 129 scholarships thus far.

Child Guidance Service.—The Mississippi State Board of Health announces the expansion of child guidance services with the opening of a clinic in Greenwood. Children and parents will be given aid in handling emotional problems. Referrals may be made by parents, teachers, physicians, public health officials, the Youth Court and social agencies.

NEBRASKA

Research on Iron Compounds.—The University of Nebraska Foundation has received a grant of $4,000 from the Smith-Dorsey Company, pharmaceutical house, for a study to determine the comparative absorption from the intestinal tract of different iron-containing compounds and their efficacy in regeneration of hemoglobin.

State Medical Election.—At the recent meeting of the Nebraska State Medical Association in Lincoln, Dr. James E. M. Thomson, Lincoln, was installed as president, and Dr. Joseph D. McCarthy, Omaha, was chosen president elect. Dr. McCarthy was also elected delegate to the American Medical Association, with Dr. Harold S. Morgan, Lincoln, alternate. Dr. Roy B. Adams, Lincoln, will continue as secretary-treasurer.

NEW JERSEY

Society News.—At the recent meeting of the New Jersey Obstetrical and Gynecological Society Dr. Herschel S. Murphy, Roselle, became president, Dr. George B. German, Camden, was made president-elect, and Dr. Benjamin Daversa, Spring Lake, was elected secretary-treasurer.

Dr. Bergsma Appointed State Health Commissioner.—Dr. Daniel Bergsma, Trenton, on June 1 assumed duties as New Jersey's first state commissioner of health under the 1947 reorganization of the health department. He replaces Dr. J. Lynn Mahaffey, Haddonfield, former state health director who has been acting as health commissioner since the department reorganized last year. Dr. Bergsma has been with the state department since 1938. After service in World War II, he was named deputy, director and last July 1 became public health consultant.

NEW YORK

Dr. Blaisdell Honored.—Five hundred employees and members of the board of visitors of the Rockland State Hospital, Orangeburg, at a dinner May 24 honored Dr. Russell E. Blaisdell, superintendent of the institution since it opened in 1930. He will retire July 1. On the following day one thousand residents gave a dinner for him in Spring Valley. Dr. Blaisdell has served forty-two years with the department of mental hygiene in New York.

Conferences on Diarrhea of the Newborn.-The state medical society and the state department of health are sponsoring one-day institutes on diarrhea of the newborn in each of the eleven state medical society regions outside New York City. The program for each institute includes a discussion of diagnosis and treatment, the epidemiologic basis for the new Regulation 35, simplification of nursery technics and hospital administration in relation to the control of the disease. A question and answer period follows each program.

New York City

Personal.—Dr. George A. Friedman presented a paper on "Military and Civilian Aspects of Reconstructive Surgery" before the Medical Society of the County of Washington April 13 at Granville.

University Appointments.--Dr. Otto Lowenstein, clinical professor of neurology at New York University College of Medicine, has been appointed professor of neurology at Columbia University College of Physicians and Surgeons. Dr. Lowenstein was associated with Bonn University in Germany, where he was head of the department of pathopsychology. From 1931 to 1933 he was a clinical professor of neurology at New York University. Dr. Cushman D. Haagensen, formerly assistant professor of surgery at the university, was recently promoted to associate professor of clinical surgery

Home Nurse Service.—The Visiting Nurse Service of New York, a public health nursing organization which provides skilled home nursing care by the visit and health guidance for families, day nurseries and small industrial plants, last year made more than 348,662 home-nursing visits. All persons receiving nursing care must be under the supervision of a physician. Almost one third of all babies born in Manhattan, the Bronx and Queens received nursing service from the organization, and over 4,000 expectant mothers were taught to prepare for and care for their babies. While $1.75 per visit is charged to those who can afford to pay, about 49 per cent of the visits are to indigent patients. The organization is largely dependent on contributions for carrying on its free services.

OHIO

Model Poliomyelitis Training Center.— The National Foundation for Infantile Paralysis has announced that it has awarded a five year grant of about $100,000 to Western Reserve University School of Medicine, Cleveland, to set up a model poliomyelitis training center for doctors, nurses and physical therapists. The new center, fifth of its kind sponsored by the National Foundation, will be under the direction of Dr. John A. Toomey, professor of clinical pediatrics and contagious diseases at the university, assisted by a staff of experts on poliomyelitis. Training courses will consist of lectures and demonstrations at City Hospital. The first of three ten-day courses for physicians is scheduled to open July 5. Two week courses for nurses and physical therapists, consisting of lectures, demonstrations and practice, begin July 16. Physicians' courses will include study of the psychic factors accompanying infantile paralysis, such as the mental attitudes of the handicapped and the psychologic pattern of the respirator patient; the role played by the orthopedist in relation to the patient with poliomyelitis in the chronic stage, and the special technics of physical therapy and orthopedic nursing. Physical therapy training will cover such topics as hydrotherapy, normal joint motion and stretching, the evaluation of muscle strength and muscle reeducation. Subjects scheduled for the nursing courses are: recognition of muscle tension, application of hot packs, position of the patient in bed, coordination of nursing and physical therapy duties and the special problems in the care of the respirator and the patient with bulbar paralysis. Some of the courses will be available to local students of medicine, and qualified candidates may be sponsored by their "hometown" chapter of the foundation. Application should be made either to Dr. John A. Toomey or to the National Foundation for Infantile Paralysis, 120 Broadway, New York 5.

WEST VIRGINIA

New Bureau of Hospital and Medical Care.—Dr. Joseph A. Markley, formerly of Morgantown, has been named director of the state health department's new bureau of hospital and medical care. A. J. Williamson, Charleston, former administrator of Charleston General hospital, will serve as field representative for the bureau, which has been set up under the provisions of the hospital licensing law, enacted by the legislature in 1947. Dr. Markley organized Health District No. 4 in 1937 with headquarters at Weston, where he remained until 1940; he was then placed in charge of a hospital under the supervision of the U. S. Department of Agriculture in the Florida Everglades. During World War II Dr. Markley served as U. S. Public Health Service regional medical officer; at the end of the war he located at Miami, Fla., where he engaged in general practice.

WISCONSIN

Course in Infantile Paralysis.—Dr. Hart E. Van Riper, medical director, National Foundation for Infantile Paralysis, will open the course in infantile paralysis at the University of Wisconsin Medical School, Madison, June 28, and will address the dinner meeting at the Loraine Hotel that evening. The course in the diagnosis and care of poliomyelitis is being presented by the medical school and the local chapters of the National Foundation for physicians in Wisconsin, through a selected group of specialists.

VIRGINIA

Personal.—Professor Karl Lindner, chief of the Eye Clinic, Vienna, Austria, delivered seven lectures at the Gill Memorial Eye, Ear and Throat Hospital, Roanoke, February 23-25.

Narcotic Violation.—According to the Bureau of Narcotics, Washington, D.C., Dr. Robert S. Fitzgerald, Martinsville, pleaded guilty to violation of the federal narcotic laws in the U.S. District Court at Danville. On February 24 his sentence was suspended, and he was placed on probation for a period of five years.

University Appointment.—Dr. Samuel D. Sturkie, director of health and welfare for the city of Lynchburg, has been appointed associate professor of preventive medicine in the University of Virginia Department of Medicine, Charlottesville, effective July 1, succeeding Dr. Thomas S. Englar, resigned. Dr. Sturkie is a graduate of the University of Georgia School of Medicine, Augusta, and was appointed health officer in 1934 in Alabama after attending Johns Hopkins School of Public Health. He served as health officer with headquarters in Marion from 1941 to May 1943, when he assumed his present post in Lynchburg.

GENERAL

Statistical Bulletin Available.—The *Statistical Bulletin* of the Metropolitan Life Insurance Company, a monthly publication, is available to physicians on request to the Statistical Bureau, Metropolitan Life Insurance Company, One Madison Avenue, New York 10.

Dr. Zentmayer Receives Howe Award.—The Howe Medal of the American Ophthalmological Society for 1948 has been awarded Dr. William Zentmayer, Philadelphia. The medal was first awarded in 1922, and since then it has been given only fifteen times. Ten of the recipients have been distinguished American ophthalmologists and five outstanding foreign ophthalmologists.

Personal.—Basil O'Connor, chairman of the American Red Cross and president of National Foundation for Infantile Paralysis, was last month awarded a gold medal of the National Institute of Social Sciences. Under his guidance, the institute said, the National Foundation "has achieved a high and permanent place in the land, offering new hope for stricken youth to face courageously a brighter future."

Report of the Markle Foundation.—According to the annual report of the John and Mary R. Markle Foundation, $460,000 was appropriated in 1947 as gifts to colleges and universities for research. Thirty-five institutions received grants, the largest being $60,000 to the Committee on Research in Endocrinology of the National Research Council. The appropriations made during the year for medical research were on a terminal basis of a new program under which the foundation is aiding selected young scientists seeking careers in teaching and research in medical schools (THE JOURNAL Sept. 27, page 238).

Plague Infection in Western Rats.—The U. S. Public Health Service reports that on May 4 plague infection was proved in pools of fleas from rats and mice as follows: In Navajo County, Ariz., a pool of 42 fleas from 4 wood rats were trapped April 15 about 1½ miles southeast of Pinetop, in Lincoln County, New Mexico, a pool of 20 fleas from 21 wood rats were trapped April 15 on a road 3 miles east of Capitan; in Kittitas County, Washington, a pool of 180 fleas from 70 field mice were trapped April 14 6 miles east of Kittitas.

Campaign to Reduce Children's Accidents.—A reduction in the number of children's accidents is the objective of an intensive campaign to be launched this fall by the Metropolitan Life Insurance Company with the cooperation of the U. S. Children's Bureau, the American Academy of Pediatrics and the National Safety Council. Accidents are the leading cause of death among children of more than 1 year of age, with death rates per 100,000 population far surpassing those of any other cause. The program is planned to encourage public health, medical, safety organizations and the public to give greater attention to child safety. A 12 page booklet, "Help Your Child to Safety," is addressed to parents and emphasizes ways of combating physical hazards and unsafe practices resulting in injuries to children. The booklet and other source material will be available from the company on request by September 1 for use in local organized child safety programs.

Awards in Internal Medicine.—Dr. Fuller Albright, Harvard Medical School, Boston, was given the Squibb Award for 1948 at the meeting of the Association for the Study of Internal Secretions in Chicago June 18. Dr. Albright was cited for his contributions on functions of the hormones, his investigation of hyperparathyroidism and hypoparathyroidism, renal disorders, diseases of bone and of the adrenal glands. Dr. Carl G. Heller, University of Oregon Medical School, Portland, was given the Ciba Award for 1948 for his contributions to the physiology of reproduction, with particular reference to the diagnosis and treatment of disorders of reproduction in man. To Dr. Ernest M. Brown Jr., of the George S. Cox Medical Research Institute, University of Pennsylvania, Philadelphia, the society awarded the Ayerst, McKenna and Harrison Fellowship. Dr. Brown will work with Dr Francis D. W. Lukens, Philadelphia, on the production of lesions of the islands of Langerhans.

Research in Heart Disease.—The American Foundation for High Blood Pressure is allocating $75,000 to research on hypertension, arteriosclerosis and associated diseases. The foundation has set up a three member allocations board outside the foundation to provide an impartial and neutral body to consider requests. Members of the board are: Dr. Harry Goldblatt, professor of pathology, University of Southern California School of Medicine, Los Angeles; Dr. Thomas Addis, professor of medicine, Stanford University School of Medicine, Stanford University-San Francisco; and Dr. William Dock, professor of medicine, Long Island College of Medicine, Brooklyn. Distribution of funds, the first allocation of the foundation, will be made to medical schools, hospitals or medical centers. Later, funds will be made available for support of postdoctoral fellows carrying on research on a full time basis. Requests to the foundation at 705 Marion Building, Cleveland, Ohio, for funds for research will be solicited without reference to the amount of money now available for allocation. Worthy requests which cannot be supported at present will be considered at the time of later allocations.

Hospital Construction in Southern States.—Thirteen Southern states will receive $33,215,250, provided by the Federal Hospital Survey and Construction Act of 1946, in annual grants in aid, alloted on the basis of population, per capita income and need. According to the May issue of *New South*, state surveys of hospital facilities indicate that the most acute deficiency is in beds for chronic illness, for which nine states have a total of only 1,877 and a need for 36,489.

All Southern states have had their hospital construction plans approved by the Surgeon General. The poorest rural community will be given first chance at federal hospital aid. Projects already begun include: Florida—five general hospitals, two children's chronic disease hospitals and one psychiatric unit; Georgia—eleven projects to provide 645 general beds and 50 additional chronic disease beds; Alabama--seven projects approved and ground broken for the first hospital; Mississippi--by the end of 1947, 67 out of 82 Mississippi counties had full time health departments; construction of fourteen hospitals and seven health centers has been authorized; Oklahoma—fourteen general hospitals, two community clinics two tuberculosis hospitals, one mental hospital and one auxiliary laboratory. South Carolina is devoting about two thirds of the total funds available for the five year period to building of general hospitals, and Louisiana for the first year is allotting 70 per cent to general hospitals, 12 per cent to public health centers and 9 per cent each to tuberculosis and mental hospitals. Alabama, Mississippi and South Carolina have appropriated state funds to supplement federal and local funds for hospital construction, and other states are considering such addition. In Louisiana a statewide system of government-owned hospitals already provides care for about 30 per cent of the entire white population and 50 per cent of the Negro population. Virginia also operates medical care programs for its indigent in which the state supplies funds to local community hospitals on a matching basis. In Texas, a number of highly successful cooperative health centers and hospitals have bden organized in towns of 2,500 population or less.

Marriages

JAMES CLINTON MONTEITH of Nyack, N.Y., to Miss Anita Ross Taylor of Scarsdale, N.Y., March 20.

WILLIAM DULANEY LEWIS JR., Richmond, Va., to Miss Ruby Louise Martin of Roanoke, March 6

WILLIAM EDWARD LAUPUS, Seymour, Ind., to Miss Evelyn Estelle Fike of Ahoskie, N.C., March 6.

JOSEPH HOLLAND BURCHENAL, Noroton, Conn., to Miss Joan Barclay Riley of New York, March 20.

ROY E. MCDONALD, Erie, Pa., to Mrs. Ann Courtenay Bennett of London, England, March 22.

ROBERT S. BEEKMAN to Miss Mary Marckwald, both of New York, April 3.

JOHN PALFREY AYER, Milton, Mass., to Miss Lea Zimmerman in Tucson, Ariz. March 20.

GEORGE R. MCNEAR JR., Scarsdale, N.Y., to Miss Virginia Eleanor Gray in Maplewood, N.J., March 4.

JOHN STEPHEN THOMPSON, Bloomfield, N.J., to Miss Irene Ruth Malcolm in Roselle, May 1.

ROBERT MURRAY CUSHING, New York, to Miss Robin Fersten of Riverdale, N.Y., April 25.

JAY BEVERLY MOSES, Hamilton, N.Y., to Miss Irma Smith of Springfield, Mo., April 22.

Deaths

William Darrach ⊕ Greenwich, Conn., dean emeritus and professor of clinical surgery at the Columbia University College of Physicians and Surgeons in New York, died in the Greenwich Hospital May 24, aged 72. Dr. Darrach was born in Germantown, Pa., March 12, 1876. Following graduation from Columbia University College of Physicians and Surgeons, 1901, he interned at Presbyterian Hospital, where in 1913 he became an associate attending surgeon, and later a visiting attending and consulting surgeon. He served on the faculty of Columbia University as a demonstrator in anatomy, from 1903 until 1909 and an instructor in surgery from 1903 to 1916, when he became professor of clinical surgery. In 1919 he was appointed dean of the medical faculty, serving until he was made dean emeritus in 1930. It was during his administration that the Columbia-Presbyterian Medical Center was erected. In 1928-1929 he was a member of the administrative board of Columbia School of Nursing and from 1919 to 1928 was president of the board of managers of the Sloane Hospital for Women and the Vanderbilt Clinic. During World War I Dr. Darrach was surgical director of the United States Army Base Hospital number 2 and also was on detached service with the British Expeditionary Force in Charge of General Hospital number 1. He remained with the occupation armies until 1919, when he was discharged with the rank of colonel. During World War II Dr. Darrach was civilian consultant in surgery to the Surgeon General, and in 1945 he was chief consultant to the Veterans Administration in New York. He also had been director of education and research at the the Veterans Administration Hospital in the Bronx. Dr. Darrach was a fellow of the American College of Surgeons and a member of its board of governors, a past president of the American Surgical Association, Association of American Medical Colleges and of the Society of Clinical Surgery. He was member of the founders' group of the American Board of Surgery, a member of the American Association of Anatomists, the Société de Chirurgiens de Paris, American Association for the Advancement of Science, New York Academy of Medicine, American Philosophical Society and others. He was a consulting surgeon at the Northern Westchester Hospital in Mount Kisco, N.Y., Greenwich (Conn.) Hospital, Morristown (N.J.) Hospital, Beckman Street Hospital, Willard Parker Hospital and New York Orthopaedic Dispensary and Hospital. From 1929 to 1937 he was a member of the board of trustees of Vassar College in Poughkeepsie. Dr. Darrach received many honarary degrees, including a doctorate of laws from St. Andrews University in St. Andrews, Scotland. For many years he was an associate editor of *Archives of Surgery*.

Frank Newcomer Hoffmeier ⊕ Hagerstown, Md., born in Middletown, Md. Sept. 15, 1876; Hahnemann Medical College and Hospital of Philadelphia, 1903; specialist certified by the American Board of Radiology, Inc.; member of the Radiological Society of North America, Inc., Southern Medical Association and American College of Radiology; during World War I served overseas with Evacuation Hospital number 17 in Vladivostock, Siberia, as roentgenologist with the rank of Captain; since February 1947 roentgenologist at the Veterans Administration Center in Martinsburg, W. Va.; for many years affiliated with Washington County Hospital; died February 19, aged 71, of coronary occlusion.

William Eager Howard, Dallas, Texas; born in San Antonio, Tex., Feb. 9, 1877; University of Texas School of Medicine, Galveston, 1897; member of the American Medical Association; specialist certified by the American Board of Otolaryngology; one of the founders of the Texas Society of Ophthalmology and Otolaryngology; formerly vice president of the Pan American Medical Association; veteran of the Spanish-American War; on the staffs of St. Paul's Hospital and the Dallas City-County Hospital System; died February 21, aged 71, of angina pectoris.

August William Fredrich Westhoff, Richmond Hill, N.Y.; Bellevue Hospital Medical College, New York, 1891; member of the American Medical Association; fellow of the American College of Physicians; formerly on the faculty of his alma mater; director emeritus of medicine at the Wyckoff Heights Hospital, Brooklyn; served as attending physician and a member of the medical board of the Bethany Deaconess Hospital and as consultant at St. Cecilia Hospital for Women in Brooklyn; died February 21, aged 82, of cerebral hemorrhage.

Ludwig W. Anderson, Atwater, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1904; died February 19, aged 65.

Esther Lydia Boyer ⊕ Missoula, Mont.; University of Wisconsin Medical School, Madison, 1939; interned at the Madison General Hospital in Madison, Wis.; formerly instructor in the department of anatomy at Woman's Medical College of Pennsylvania, Philadelphia, and instructor in surgery and assistant physician in the student health department at the University Hospitals, Columbia, Mo.; member of the Western Montana Clinic; died March 5, aged 45.

Edward Wilbur Burke ⊕ Redlands, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; an Affiliate Fellow of the American Medical Association; affiliated with the Redlands Community Hospital; died March 3, aged 74, of heart block.

Charles F. Byrd, St. Joseph, Mo.; Ensworth Medical College, St. Joseph, 1895; served as county coroner; died February 20, aged 80.

Emmett Davis ⊕ Library, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1911; died March 3, aged 62, of coronary thrombosis.

Frank Judson Edgett, Amityville, N.Y.; Maryland Medical College, Baltimore, 1912; New York Homeopathic Medical College and Flower Hospital, New York, 1916; health officer; served on the staff of the Brunswick Home, where he died February 26, aged 60.

George K. Gordon, Malden, Mass.; Tufts College Medical School, Boston, 1919; served during World War I; died in the Mount Sinai Hospital, New York, March 3, aged 53, of heart disease.

Edwin R. Gould, Buffalo; University of Buffalo School of Medicine, 1900; died March 1, aged 79, of coronary thrombosis.

Joseph E. Gower ⊕ Spearman, Texas; Kansas City (Mo.) College of Medicine and Surgery, 1919; served as county health officer; died in Shattuck, Okla., February 29, aged 71, of acute nephritis.

Theodore F. Hammermeister ⊕ New Ulm, Minn.; University of Minnesota Medical School, Minneapolis, 1915; died February 14, aged 60.

Ralph Bolender Hannah, Georgetown, Ohio; Miami Medical College, Cincinnati, 1896; member of the American Medical Association; president of the Brown County Medical Society; died in Christ Hospital, Cincinnati, February 25, aged 74, of cerebral hemorrhage.

Vincent Valentine Hardeman, San Francisco; College of Physicians and Surgeons of San Francisco, 1918; died February 29, aged 60, of coronary thrombosis.

Gilbert Cole Herndon, San Antonio, Texas; Baylor University College of Medicine, Dallas, 1935, member of the American Medical Association, served during World War II; died February 6, aged 36, of injuries received in an automobile accident.

Gerrit Heusinkveld ⊕ Denver; University of Colorado School of Medicine, Denver, 1920; died February 26, aged 58, of coronary occlusion.

Dorsey Mark Hines ⊕ Auburn, Ind.; Indiana University School of Medicine, Indianapolis, 1909; served overseas during World War I; affiliated with the Sacred Heart Hospital in Garrett, and Sanders General and Dr. Bonnell M Souder Hospitals, died February 25, aged 61, of nephritis.

Oliver Hunt Howe, Cohasset, Mass.; Harvard Medical School, Boston, 1886; member of the American Medical Association; for many years school physician and medical examiner in Cohasset; president and trustee of the Cohasset Free Public Library; past president of the Norfolk South District Medical Society; died March 1, aged 87

Vincent Joseph Irwin Jr. ⊕ Springfield, Mass.; Yale University School of Medicine, New Haven, 1909; member of the American Academy of Ophthalmology and Oto-Laryngology; specialist certified by the American Board of Otolaryngology; served during World War I; died February 26, aged 60. of coronary thrombosis.

George Chauncey Jameson ⊕ Oberlin, Ohio; University of Pennsylvania Department of Medicine, Philadelphia, 1893; for many years chief of staff at Allen Hospital; one of the founders of the Oberlin Hospital Association; died February 29, aged 82, of complications following pneumonia.

William Leonard Karcher ⊕ Freeport, Ill.; Medico-Chirurgical College of Philadelphia, 1900; past president of the Stephenson County Medical Society; fellow of the American College of Surgeons; affiliated with St. Francis and Evangelical Deaconess hospitals; died March 3, aged 73, of carcinoma of the stomach with metastases of the liver.

Robert James Kennedy, New Rochelle, N. Y.; Temple University School of Medicine, Philadelphia, 1939, on the staff of New Rochelle Hospital; died in Chattanooga, Tenn., February 28, aged 33, of mitral stenosis and rheumatic fever.

Charles Francis Kuhn, Port Townsend, Wash., Long Island College Hospital, Brooklyn, 1883; also a graduate in pharmacy; served as health officer of Port Townsend; formerly surgeon of the United States Army, Alaska Treadwell Mine in Treadwell, Alaska and the Marine Hospital Service, died in St. John's Hospital February 13, aged 87, of cardiovascular renal disease.

Frank Kunz ⊕ Akron, Ohio; Western University Faculty of Medicine, London, Ontario, Canada, 1906; died February 27, aged 65, of coronary occlusion.

Forrest Leroy Leland, South Hadley Falls, Mass.; Tufts College Medical School, Boston, 1908; fellow of the American College of Surgeons; for many years served on the board of health; member of the American Medical Association; died February 26, aged 67, of coronary thrombosis.

Rollo Bertell Lester, Desloge, Mo.; Washington University School of Medicine, St. Louis, 1904; member of the American Medical Association; affiliated with the State Hospital, Nevada, where he died February 14, aged 72, of cerebral hemorrhage.

Henry Lovett, Philadelphia; Jefferson Medical College of Philadelphia; 1888; at one time practiced in Langhorne, Pa. where he was president of the People's National Bank; died in the Friends Hospital February 22, aged 82.

Robert Cooley Maddox ⊕ Rome, Ga.; Atlanta Medical College, 1916; member of the board of education; past president of the Floyd County Medical Society; president elect of the Seventh District Medical Society; a trustee of the Darlington School for Boys and for many years school physician; served during World War I; died February 23, aged 54, of heart disease.

Wasel Maholage Jr., Mahanoy City, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1934; member of the American Medical Association; died in the Hahnemann Hospital, Philadelphia, February 28, aged 39, of pneumonia.

Ernest George Maier ⊕ Philadelphia; Jefferson Medical College, Philadelphia, 1905; assistant professor of gynecology at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; for many years affiliated with Physicians and Surgeons Hospital; died March 5, aged 68, of acute nephritis.

Ralph Vernon Moore ⊕ Portland, Ore.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; fellow of the American College of Surgeons; affiliated with the Emanuel Hospital; died in the Fairlawn Hospital February 26, aged 70, of arteriosclerosis.

Oscar James Mullen, Philadelphia; Temple University School of Medicine, Philadelphia, 1906; member of the American Medical Association; died in the American Stomach Hospital February 29, aged 71.

Bernard Joseph Neary, Johnstown, Pa.; University of Louisville (Ky.) Medical Department, 1911; served during World War I; formerly affiliated with the Indian Service; died February 24, aged 72, of arteriosclerotic heart disease with recurrent infarctions.

Edmund J. Overend, Oakland, Calif.; Medical College of the State of South Carolina, Charleston, 1883; Jefferson Medical College of Philadelphia, 1884; past president of the Alameda County Medical Society; died February 24, aged 93, of bronchopneumonia and influenza.

Gustavo Federico Porro, Tampa, Fla.; Universidad de la Habana Facultad de Medicina y Farmacia, Cuba, 1926; died February 29, aged 47, of coronary thrombosis.

Auguste Rhu, Marion, Ohio; Western Reserve University School of Medicine, Cleveland, 1885; member of the American Medical Association, serving in 1912 as a member of its House of Delegates; past president of the Marion Academy of Medicine; formerly secretary of the Ohio State Medical Association; fellow of the American College of Surgeons; died February 27, aged 93.

John D. Rice, Hiawassee, Ga., Atlanta College of Physicians and Surgeons, 1900; died January 23, aged 73.

Alice Lucinda Root, Winthrop, Mass.; Electropathic Institute, Philadelphia, 1876; died February 22, aged 92.

Charles Whitall Root, Ravenswood, W. Va.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1893; died February 25, aged 79, of carcinoma of the liver.

William Grant Ross, Kempton, Ill.; Rush Medical College, Chicago, 1902; died February 25, aged 79, of coronary thrombosis.

Wilson J. Seal, Sneedville, Tenn. (licensed in Tennessee in 1906); died March 1, aged 78, of angina pectoris.

Alfred Marion Shaw ⊕ Chicago; Rush Medical College, Chicago, 1910; died in Presbyterian Hospital February 7, aged 76, of cerebral thrombosis and arteriosclerosis.

Karl Vollmer ⊕ Davenport, Iowa; State University of Iowa College of Medicine, Iowa City, 1892; past president of the Illinois-Iowa Central District Medical Society; past president and secretary of the Scott County Medical Society; for six years a member of the school board; affiliated with Mercy and St. Luke's hospitals; died February 19, aged 78, of hypertensive heart disease.

Arthur Willard Watson, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1880; member of the American Laryngological Association; formerly associated with the staffs of the Jewish, University and Episcopal hospitals; died February 17, aged 89, of bronchopneumonia.

James Henry Wayland, Plainview, Texas; Kentucky School of Medicine, Louisville, 1886; died in February, aged 84.

George Dillard Wells, Los Angeles; Barnes Medical College, St Louis, 1911; member of the American Medical Association; died February 9, aged 62.

Egbert Hayes Wesson, New Albany, Miss.; College of Physicians and Surgeons, Memphis, Tenn., 1911; served during World War I; died in Veterans Administration Hospital, Memphis, Tenn., February 29, aged 58, of heart disease.

Frank Alonzo White ⊕ Childress, Texas; University of Louisville (Ky.) Medical Department, 1904; past president of the Childress-Collingsworth-Donley-Hall Counties Medical Society and of the Panhandle District Medical Society; formerly secretary of the Hopkins County Medical Society; member of the Texas Society of Ophthalmology and Otolaryngology; local physician for the Fort Worth and Denver Railroad; died January 24, aged 76, of coronary occlusion.

KILLED IN ACTION

LIEUT. COL. WILLIS H. DRUMMOND
M.C., A.U.S., 1899-1944

CAPT. JOHN R. MAGRUDER
M.C., A.U.S., 1914-1945

CAPT. JOHN E. EDGE
M.C., A.U.S., 1919-1945

Willis Hinton Drummond ⊕ Lieutenant Colonel, M.C., U.S. Army, Hollywood, Calif.; State University of Iowa College of Medicine, Iowa City, 1924; fellow of the American College of Surgeons; certified by the National Board of Medical Examiners; U.S. Army Medical School in 1931; entered the medical corps of the U.S. Army as a first lieutenant in 1929; went to the Philippines from Walter Reed General Hospital in Washington in 1940 and was serving at the Sternberg General Hospital in Manila when the war broke out; promoted through the various ranks to that of lieutenant colonel; killed in an air attack in the Pacific area Dec. 15, 1944, aged 45, while being transported aboard a Japanese vessel from the Philippine Islands to Japan.

John Robinson Magruder, Baltimore; born in Baltimore May 21, 1914; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1939; interned at the Baltimore City Hospital in Baltimore; interned at the Charity Hospital in New Orleans, where he served a residency; began active duty as a first lieutenant in the medical corps, Army of the United States, in May 1942; assigned to duty at Brooks Field, San Antonio, Texas; after four months was transferred to the 76th Station Hospital, Camp Livingston, La., performing duties of surgeon, and accompanied that unit to the Pacific theater, where he also served with the 22nd Station Hospital and the 97th Portable Surgical Hospital; promoted to captain; died in action on Luzon Island Aug. 22, 1945, aged 34.

John Evans Edge, Bryan, Texas; University of Texas School of Medicine, Galveston, 1943; interned at the Graduate Hospital of the University of Pennsylvania in Philadelphia; began active duty as a first lieutenant in the medical corps, Army of the United States, on July 1, 1944; stationed at Carlisle Barracks, Pa., Ashford General Hospital, White Sulphur Springs, Va., and Camp Barkeley, Texas; assigned to 82nd Medical Battalion of the 12th Armored Division (7th Army ETO); promoted to captain; awarded the Purple Heart and the Meritorious Service Plaque--82nd Medical Battalion; wounded at Bertheim, Germany, April 8, 1945; died at the 11th Evacuation Hospital at Lauda, Germany, April 9, 1945, aged 25, of wounds received in action.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 22, 1948.

International Congress on Mental Health

Yet another medical international congress is to be held in London. It has unusual importance in that it aims at taking part in international politics and exerting a healing influence on a sick world. In this third International Congress on Mental Health three main bodies are concerned: the International Committee for Mental Hygiene, the International Committee for Child Psychiatry and the International Federation for Medical Psychotherapy. Some forty-five nations intend to take part. At present nearly two hundred working parties spread over the world are actively preparing material for the program. Educators, sociologists, clergymen, anthropologists, psychiatrists, psychologists and others are turning their attention from academic and individual problems to the study of tensions of communities. The main theme, mental health and world citizenship, indicates that at this congress the emphasis is on sick groups and, indeed, on the sick world: the aim is the achievement of sounder mental health. The congress has the full approval of the British government and the active support of the World Health Organization and of UNESCO. The last has made a substantial grant toward bringing representatives from the war-damaged countries, who would otherwise be prevented from attending by currency restrictions and lack of funds. In addition to the considerable general expenses of a large congress, the organizers are endeavoring to raise a sum of at least $40,000 to pay the expenses of more than two hundred of these delegates.

A large number of working parties are now busy, and on the results of their labors the chief speakers of the congress will be chosen. The children's group is to discuss the development of personality and its individual and social aspects with special reference to aggression. The section dealing with treatment will discuss various aspects of guilt. The main conference on mental hygiene, taking mental health and world citizenship as its theme, will spend a full week on such topics as the individual and society, family problems and psychologic disturbances, and mental health in industry and industrial relations. The suggestion that the congress may develop a permanent organization for mental health, and thus try to find some hope for a frightened world, has received the support of the executive secretary.

Priority on Milk For Polyarthritic Patients

Although three years have passed since the end of the war, the British are still subject to confiscatory taxation, food shortages, rationing and numerous controls of production and individual expenditure. Fresh regulations are always being made to meet the difficulties arising when a government tries to control everything. Recently the Minister of Food, on the advice of the Food Rationing Special Diets Advisory Committee, has decided that patients with an active form of polyarthritis associated with a raised sedimentation rate and loss of weight shall be allowed a priority claim on the supply of 1 pint (473 cc.) of liquid milk a day, on the basis of a certificate from their physician. The minister would like to have made milk available to patients with other types of arthritis also, but the supply is not sufficient for this purpose. The previous criteria have been adopted in order to insure that the limited supply available shall go to those whose need is greatest. When a doctor decides to certify a patient as suffering from infective polyarthritis his certificate should contain the following information: (1) a statement that the condition is active, infective polyarthritis; (2) whether there has been loss of weight, and (3) the value of the sedimentation rate and the date the test was done.

Bill To Protect Workers in Radioactive Substances

A short time ago trade union leaders alleged that some workers in radioactive substances had sustained serious injuries, but this has never been confirmed. However, the government has introduced a Radioactive Substances Bill to protect workers and the public against harmful exposure to radiation. The regulations are similar to those which already exist under the Factories Act for the protection of employees in hospitals, laboratories and industrial establishments. Radium, radon and certain irradiating apparatus, principally roentgen ray tubes, are covered. The legislation applies to all places where radioactive substances or irradiating apparatus are manufactured, treated, stored or used. The disposal of radioactive waste will be controlled, and regulations may be made to prevent injuries during transport of these substances. Only medical and dental practitioners or persons working under their direction who hold a license from the Minister of Health will be allowed to use certain apparatus and radioactive substances for the treatment of patients. The supply of such substances to the public in the form of medicines or toilet preparations will be illegal except under the authority of a prescription from a physician.

OSLO

(From Our Regular Correspondent)

May 15, 1948.

Tuberculin Control for All

In 1939 the Norwegian Association of Tuberculosis Doctors recommended tuberculin testing and registration of every one up to the age of 30. On the West Coast of Norway Dr. Tobias Gedde-Dahl, recently appointed as secretary-general of the Norwegian National Association against Tuberculosis, has shown that this recommendation can be translated into remarkably effective action. From 1937 onward he has worked as district medical officer in an area with a population of about 6,500. Using the Pirquet test, he kept the negative reactors under subsequent periodic tuberculin control, while the positive reactors were kept under radiologic control. He has now published his results in a 235 page work entitled "Tuberculosis Infection in the Light of Tuberculin Registration:" A twelve page summary in English is a concession to readers who do not know the Norwegian language and to those Norwegians who like their reading condensed. During the observation period 1937-1944 Dr. Gedde-Dahl found that the overwhelming majority of the population in his district was still tuberculin-negative at the age of 15: about 80 per cent of the urban population and about 85 per cent of the rural. Even at the age of 30, about 30 per cent of the men and about 45 per cent of the women had not yet been infected. Hence, the conclusion that tuberculin control must be extended far beyond the age of 30. Another conclusion was that few children are infected in their homes; many sources of infection are to be found outside them. Dr. Gedde-Dahl has found Pirquet testing far more effective than mass roentgenography as the first step in the discovery of new cases, and he prefers to make the latter subservient to the former, roentgenography to be reserved for tuberculin-positive reactors. During the period under review, the percentage of traced cases of progressive pulmonary tuberculosis in his district rose, but the mortality from pulmonary tuberculosis fell in the same period from 10.8 to 5.7 per ten thousand persons and that from all forms of tuberculosis from 13.5 to 6.4.

Scandinavian BCG Crusade in Europe

In a recent radio talk Dr. Galtung Hansen, who is at the head of the tuberculosis service in Norway, outlined the ambitious and stupendous scheme already set in motion for the examination of 50,000,000 children in eleven countries in middle and southern Europe with tuberculin with a view to the negative reactors' being vaccinated with BCG. The credit for the first steps in this scheme belongs to the Danish Red Cross, which began to operate it more than a year ago. With a recent grant of $2,000,000 and the cooperation of international health experts, the scope of this scheme has been enlarged and the participation of Norwegian and Swedish doctors and nurses has been secured. Between two hundred and three hundred teams, each consisting of one doctor and two nurses, are required for the execution of the scheme in the course of a year and a half. The five doctors and ten nurses who have volunteered in Norway for this service are undergoing special preparatory training. Their task and that of their Danish and Swedish colleagues will include the training in this work of other doctors and nurses in the countries visited.

A Statistical Study of Asthma in Norway

During 1946, Dr. Odvar Claussen, attached to Professor Olav Hanssen's staff at the Rikshospital in Oslo, undertook a statistical study which has added to knowledge of asthma. Or perhaps it will be nearer to the truth to say that he has been successful in emphasizing the many gaps in the knowledge of this disease. By securing the cooperation of eighty-six of the three hundred and seventy-seven District Medical Officers of Health in Norway he has been able to show that there were 1,190 asthmatic persons among the 295,356 inhabitants of the eighty-six districts studied. From these figures he concludes that there are at least 12,000 persons with asthma in the whole of Norway, whose population numbers about 3,000,000. Like other observers, Claussen found male patients in the majority (58.2 per cent), but he ventured on no explanation of this sex difference. In 47 per cent of the women the asthma began after the age of 30, and in 26 per cent after the age of 40. The corresponding figures for men were 41 and 24 per cent, respectively. In the first decade of life there were only 34 girls to every 66 boys, and in the second decade boys were still more in the majority (69 per cent). In as many as 50 cases the asthma had lasted for more than forty-five years. The average weight of both male and female patients was a trifle below normal. No great difference could be found in the frequency of asthma in coastal and inland districts, and Claussen could find no proof that climate has an important effect on its frequency. Capacity for work was reduced in most cases, and it was completely lost in 7.3 per cent of the men with an average age of 53 years and an average duration of the disease of eighteen years. Only 4.5 per cent of the women were completely invalided. In 29 per cent of the asthmatic patients there was a history of other allergic diseases such as chronic eczema, urticaria and hay fever; and in 50 per cent there was a family history of allergic disease. Apparently the asthma began at an earlier age when there was a family history of allergic disease than when there was no such history. Dr. Claussen concluded with calculations that justify the stamping of asthma as a national scourge.

BERLIN

(From Our Regular Correspondent)

May 9, 1948.

Penicillin in Western Zones and in Berlin

The flow of penicillin into the Western zones and into Berlin—where all four sectors are equal beneficiaries—is now regular enough to enable military authorities to put the drug at the disposal of German hospitals for the treatment not only of venereal diseases but of pneumonia, pleurisy, pulmonary abscesses, meningitis and septicemia. The distribution is in the hands of the *Landesgesundheitsamt*. In Berlin there are twenty hospitals which have penicillin on hand; other hospitals may get it on special application. The pharmaceutical firm of Schering in Berlin is now recovering penicillin from the urine of treated patients and thus adding materially to the stocks made available from the West.

New Medical Educational Developments

(a) Foundation of the Institute for Medicine and Biology.—The Berlin suburb Dahlem, now principal residential district for the American occupation forces, is the site of the once famous Kaiser-Wilhelm-Gesellschaft, widely known center of scientific research. As early as 1946, Nobel-prize-winner Professor Warburg reopened the institution of the "Dahlem Colloquiquim" meeting place and discussion forum for leading authorities in the fields of chemistry, physics and biology. Late in 1947 the constituent meeting of the Institute for Medicine and Biology took place within the Kaiser-Wilhelm-Gesellschaft. Seven institutes and one clinic are planned for this new research institution. Two, one for biochemistry and one for theoretic physics, are already in operation. Professor Lohmann is in charge of the whole project.

(b) Courses for Physicians in the American Sector of Berlin.—Beginning in the summer of 1948, courses will be given for physicians under the sponsorship of the Department of Public Health, Berlin sector. The expenses will be covered by funds from fines imposed on Germans by the military government. The courses will be given at the two largest hospitals in the American sector. German specialists will teach in their particular fields; lectures by American physicians are also planned.

(c) Association of Psychologists.—By the recent foundation of the Professional Association of German Psychologists of Hesse, the organization of all psychologists within the British and American zones was completed. The leaders of the Hesse association are Dr. Schnehage, of the labor office in Frankfurt, and Professor Duecker, Marburg, as representative of the German Society for Psychology.

Correspondence

EVALUATION OF FOREIGN GRADUATES

To the Editor:—In the May 1 issue of THE JOURNAL there appeared on page 16 an article signed by Dr. Lochner of Albany, N.Y., concerning the evaluation of foreign medical graduates. Unfortunately, that article contains misleading statements; here is a quick review of some of the errors he committed:

First, he did not even mention the existence of a tremendous difference among the various medical schools abroad; he simply englobed all of them, failing to distinguish between the very fine colleges (e.g., Paris, Lyon, Amsterdam) and some second class schools in certain European countries.

Second, he failed to mention that among the foreign graduates who try to revalidate their medical credentials in this country, a very large percentage are American-born youths who for one reason or another went abroad to study. Thousands of American boys went to Germany, Austria, Switzerland, England and other countries in Europe. It is a sad fact, but nevertheless indubitable, that in many European medical schools foreigners, and especially Americans, had to pass much "milder" examinations than did the natives of the countries and that in many of those countries diplomas delivered to foreigners carried the famous inscription "valid only for abroad," as the respective countries did not admit them for licensure. Hence, the large percentage of deficiently trained graduates and their failures in state medical examination in this country. It is obvious, however, that the global percentage of failures of foreign graduates as indicated by Lochner in his report is entirely silent concerning this exceedingly important detail.

Third, a purely quantitative approach to the statistical analysis of failures of foreign graduates is unjust, for it fails to take into consideration the important fact that many of those foreigners are physicians who for ten, fifteen or twenty years had their practice limited to certain specialties. An otherwise brilliant dermatologist may have difficulties in passing his examination in obstetrics, or even anatomy; the same holds true - *mutatis mutandis* - for a psychiatrist, gynecologist or other specialist. Thus, to compare an elderly specialist with a young, recently graduated colleague still in practice is, to say the least, unfair.

Fourth, Lochner fails to mention the well known fact that the immense majority of foreign graduates do participate in hospital and clinic work, just as the majority of their American graduated confrères, and with the same zeal and efficiency. Moreover, many a foreign graduate became nationally famous for his important scientific contributions, and many of them occupy positions as teachers and leaders in America's foremost schools and hospitals-seemingly to everybody's satisfaction. Indeed, practically all foreign doctors in this country become citizens, raise families and become thoroughly incorporated into American life. (Incidentally, many of them marry American women.)

Fifth, concerning the moral qualities of the foreign graduates, I am convinced that no generalization could be safely sustained; just as in any other group, there are nice persons among them and also some rather reprehensible ones. However, to judge all of them bad because some of them are arrogant or unthankful to this great country would be unjust.

MARDOOUEO I. SALOMON, Sc.D., M.D., Bronx, N.Y.

To the Editor:—In an article in THE JOURNAL, May 1, Dr. Jacob L. Lochner, of Albany, N. Y., reported about "Licensure Evaluation of European Medical Graduates." As long as there are by now several thousand foreign graduates in this country who have taken their state board examinations during the last fifteen years, the problem involved is bound to arouse considerable interest and attention in many medical communities of the Unites States.

Dr. Lochner's article presented a frank and violent attack on European immigrant physicians, and, as similar articles have appeared in other medical journals, it seems appropriate to hear somebody from the other camp.

Dr. Lochner started out in dealing with the different national systems of education, and cited the reports which the Commission of Medical Education made in 1932. For the most part, also, he considered medical education in Germany. The report stated that up to 1913 medical education in Germany was as good as any in the world; that it was, *however, seriously affected by Hitler* after 1938, so that the New York Board will not recognize medical education begun in Germany after 1940. Strangely enough, no mention was made about the standard of medical training and education between 1913 and 1938, although the vast majority of those immigrant doctors who have come to the United States during the last fifteen years received their training during that period. I suppose the outcome of an investigation must not have been unfavorable; otherwise Dr. Lochner would hardly have failed to mention it.

After those spearheads, Dr. Lochner set out for a full-fledged attack against foreign graduate doctors. Without any connection with the foregoing statements, he asked, "Now, what has been their success in passing the New York medical licensing examination? Their attitude has been, and strangely enough still is, that of arrogance and superiority. The majority have shown no friendliness or thankfulness to be allowed to come to this free and democratic country...." This is about as unsemantic a statement as it is possible to make. From Dr. Lochner's own statistics, 5,025 foreign graduates have passed-not only taken-their state board examinations between 1938 and 1946. How many of these doctors has Dr. Lochner checked on, talked to or heard of as being unfriendly or not thankful toward their new country? The majority of 5,025 would be more than 2,512. Besides, does he by any chance form his opinion from the reactions of disappointment when a doctor aged 50 or more, who is financially able just to tide himself over those first few months, flunks out? Would Dr. Lochner possibly be free from any emotional reaction if he should have the bad luck to have to try again in a new country and should have to take examinations fourteen times, as did the unfortunate man whom he cited? To get a proper idea about the attitude of foreign graduates, one should judge from those who have weathered the first storm and have been in practice for a year or two—not from those who, as Dr. Lochner admits, have been here just a short time.

"Many of the foreign physicians will complain! Do they come alone to complain? No! In practically every case they bring or send a member of the legislature or even a member of Congress." I find out, again from Dr. Lochner's figures, that there were 4,036 foreign graduates who failed during 1938 to 1941. If our senators and congressmen had to take care of only a small fraction of those 4,036 cases, say one tenth, they would certainly be kept more than busy, especially as long as they still have to take care of other business.

I would not state that every physician who has undertaken to start out anew in this country has been lovable or an asset, but one should not condemm a whole group which, just on account of gratitude and, I may say, love toward this country, is badly hurt by statements as they have come out of the mouth and pen of Dr. Lochner. Just as we have been trying hard to understand and adopt the American way of thinking and acting, which I think has gradually become a part of us, it may not be asking too much for us to try to understand those who have lived mostly for more than four decades under entirely different circumstances and in an entirely different semantic environment. What seems to be arrogance and superiority is often nothing of the kind; it is a different behavior explained by different upbringing. In a German university or hospital there is always present a distinct distance between the senior physicians down through the scale of the subordinate ones. A younger doctor has been trained to respect this distance, and a certain exaggerated reverence toward the older and upper members of the staff was the natural and expected attitude. This was probably a part of the militaristic structure of every German institution. Therefore it naturally takes time before such newcomers to this country will realize that everything functions just as well, if not better, without a clicking of heels and that there is nothing wrong in greeting your superior with a simple "hello." Inhibitions have to be overcome before the lack of necessity, or even the absurdity, of keeping "distance" is fully realized. even in the intercourse with colleagues on an equal footing. This is a part of the process of assimilation and adaptation which, of course, cannot be accomplished in two or three months but which most of the immigrants are seriously striving for, and, as I know, with a great deal of ultimate success. I believe that it is this inherited and trained attitude of German immigrants which gives rise to the impression of arrogance and superiority which Dr. Lochner finds so conspicuous in them.

All mankind sighs over the deterioration of human relations. Continuance of discrimination is an intellectual and spiritual attitude which cannot and will not lead the world out of the maze in which it has lost itself. We will not be able to build up a saner and less hostile society in smaller and larger measures unless we cultivate what men have in common rather than emphasize their differences.

ERICH WOLFF, M. D., Beverly Hills, Calif.

Medical Motion Pictures

FILM REVIEWS

Tattooing of Skin Grafts and Port Wine Stains. 16 mm., color, silent, 410 feet (one reel), showing time twelve minutes (to be run at sound speed). Prepared by Herbert Conway, M.D., Plastic Surgery Clinic, Cornell University Medical College, New York Hospital, New York. Produced in 1947 by the Medical Film Guild. New York. Procurable on loan from the author, 525 East Sixty-Eight Street New York 21.

This film shows the technic of tattooing for coloration of skin grafts on the face and the permanent camouflage of port wine stains (capillary hemangiomas) by injections of pigment. The technic of administration and the appearance of patients before and after the treatment are demonstrated. One patient with a split-thickness graft on the forehead is shown preoperatively and postoperatively. Another is shown with a spotty port-wine stain about the forehead and glabella. A few colored stills of light stains of the face before and after tattooing are used. The photography is excellent. The photomicrographs are incorrectly titled as microphotographs.

A Multiple Personality. 16 mm., color, sound, 675 feet (one reel), showing time sixteen minutes. Prepared in 1946 by John G. Lynn, M.D., and Raymond Sobel M.D., Department of Neurology, Columbia University and Psychiatric Institute, Grasslands Hospital, Valhalla, N.Y. Produced by and procurable on loan from the Medical Film Guild, 167 West Fifty-Seventh Street, New York 19.

A woman aged 24 who had been committed to the Grasslands State Hospital is portrayed as having four personalities each independent of and amnesic for the others. Under hypnosis the patient is directed to become successively Flossy, a conscience-free psychopath; Mickey, a passive, inhibited, fearful preadolescent; Florence, a naive, fearful child, and finally Miss Nelson, an affectless adult with an I.Q. of 130. The patient's posturings in these personalities are so transparent and the hypnotic technics used to effect the metamorphoses are so obviously inadequate that even an unsophisticated observer is led to wonder just who is supposed to be hypnotizing whom. The confusion is increased by many other defects in the film: slipshod photography, editing and synchronization; filled-in speeches; misplaced subtitles, and relatively pointless but persistent questionings of the patient as to whether or not she likes her physician. A final subtitle implies that the patient had been benefited by a combination of hypnotic and psychoanalytic therapy; yet in the last scene the only apparent changes in the patient's appearance and behavior are (1) a more becoming hair-do and (2) a willingness on her part to repeat various cliches to the effect that her "Flossie personality had been psychopathic," "Mickey" had suffered from a "guilt complex" and "Florence" had furnished a last escape. The film is chiefly remarkable as a throwback to the theories of Janet and Morton Prince about dissociation and splitting of the personality; as such, it might be useful in illustrating the recurrently atavistic tendencies in some psychiatric thinking.

Without critical and evaluative comment, however, it would be seriously misleading to medical students or even to physicians inexperienced in the interpretation of psychiatric phenomena.

The Surgical Treatment for Carcinoma of the Lower End of the Esophagus. 16 mm., color, silent, 1,100 feet (three reels), showing time forty-two minutes. Prepared in 1947 and procurable on loan from Philip Thorek, M.D., 25 East Washington Street, Chicago 2.

The film shows the resection of a cancer of the lower end of the esophagus through a combined abdominothoracic incision; depicting the technic of this difficult major operation. The surgical technic is excellent. The color photography is good. On two occasions the position of the camera is shifted without the audience being told of the shift. This introduces an element of confusion, and it is some time before one can again orient himself in relation to the anatomy. The film would be of particular interest to surgeons performing this type of surgery, but it would be valuable to all physicians as demonstrating the ease with which these major procedures are now being performed.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Life Insurance: Death of Insured Following Abortion.—The plaintiff, as beneficiary, sued to recover on three life insurance policies issued to the deceased by the defendant insurance company. From a judgment for the plaintiff, the defendant appealed to the court of appeal of Louisiana, Orleans.

Each policy sued on provided in effect that no benefits would be payable if the insured died as the result of a violation of the law. The death of the insured resulted from acute tetanus following a criminal abortion, to which she had voluntarily submitted.

The defendant first contended that the deceased was an accessory to the abortion, which is a crime, and that the aforementioned provisions of the policies therefore absolved it from liability. The definition of the crime of abortion as found in the Louisiana criminal code, the court said, indicates that it was the legislature's intention to make the person who feloneously administers a drug or potion or any other substance to a pregnant woman, or who uses any instrument or any other means whatsoever on a pregnant woman, for the purpose of procuring a premature delivery of the embryo or fetus, guilty of the crime of abortion. The language used in the definition is not broad enough to show an intention to include a woman who consents or submits herself to an abortion, however, even though such woman is guilty of a detestable and revolting offense against the laws of nature. The defendant is absolved from liability in this case only if an unlawful act perpetrated by the insured caused her death. If it was the intendment that the insurer would not be liable if the criminal act causing death was that of a third person, a case might arise in which an innocent policy holder, without provocation, was feloniously killed by another, in which event the insurance company would be relieved of paying the policy, as it could be said that the death arose from a criminal act, even though the insured played no part therin, except being the victim. A provision of a life insurance policy relieving the insurer from liability where death results from a violation of the law is to be given a reasonable and common sense construction. We believe, the court concluded, that the exclusion of liability clause in question was intended to apply only in cases where death resulted from a violation of the law by the insured herself.

The defendant next argued that the act causing the insured's death was of a heinous and abhorrent character and that public policy precluded insuring her against its consequences. The record does not show what relationship, if any, existed between the plaintiff and the deceased, nor is it shown that he had any knowledge of the deceased's intention to submit to the operation or played any part in it. The plaintiff, however, is the designated beneficiary and seeks the the recovery individually and for his own account. The question presented, said the court, is therefore: Should the plaintiff here, who is the named beneficiary of life insurance policies, be allowed to enforce collection of the policies where the death of the insured resulted from a criminal operation, the policies not expressly providing against the insurer's liability for death from such a cause?

It seems to be the general rule, the court of appeal said, to take into account two different classes of life insurance policies, one class being those policies made payable to the assured's estate, or to his personal representative by some appropriate designation, and the other class being those policies in which some third person is nominated and designated as beneficiary. The weight of authority appears to be to the effect that a person or his estate should not profit as a result of his own wrongdoing, and that when the maturity of an insurance contract made payable to the estate, or to the personal representative, is hastened or accelerated by his wrongdoing, even in the absence of any prohibitory clause in the contract, no recovery can be had on the policy. It is otherwise in cases involving policies in the latter class, i.e., those running in favor of third persons as beneficiaries, on the theory that the beneficiaries, having acquired a vested interest in the policies, cannot be either divested thereof or jeopardized therein, after issuance of the policies, by any wrongful act of the insured not excluded from coverage, for which they are not responsible. Even though the deceased came to her death as a result of the illegal operation for abortion to which she had voluntarily subjected herself, such submission on her part, which was reprehensible and detestable, cannot be used by the insurer as a valid defense to absolve itself from the payment of the proceeds of the policies to plaintiff, as plaintiff appears individually and as the designated beneficiary, having a vested interest in the policies. His rights as beneficiary could not be affected, and were not affected, in any way by the act of the insured, for which he was in no way responsible; there is no reason for disregarding the terms of the contract of insurance and exonerating the insurer on the grounds of public policy. Accordingly the judgment of the trial court in favor of the plaintiff was affirmed.—*Payne v. Louisiana Industrial Life Ins. Co., 33 So. (2d) 444 (La., 1948).*

Liability of Charitable Hospital for Injuries to Private Nurse.—The plaintiff sued the defendant hospital for injuries sustained by her while working as a private nurse for a patient of the defendant hospital, the injuries allegedly having been due to the negligence of an employee of the hospital. From a judgment for the plaintiff the defendant appealed to the Court of Errors and Appeals of New Jersey.

At the time of the accident the plaintiff was nursing a patient of the defendant charitable hospital, for which she was receiving $49 per week from the patient, who also paid the hospital for her meals. On Dec. 7, 1943 the plaintiff proceeded to the basement of the hospital, where the nurses' cafeteria was located; she obtained her food at the food counter and was carrying her tray from the food counter down the corridor and around a corner to the restaurant when she tripped over a pan alleged to have been placed in a negligent manner and was injured.

The question of liability of a charitable hospital to respond in damages for negligence of its servants has been many times before the courts, said the Court of Errors and Appeals. Conflict exists concerning such liability. There are two rules, the "absolute or unqualified" immunity rule and the "qualified" immunity rule, and various reasons have been given in support of each. Among those reasons are "public policy," "trust fund theory," "waiver theory" and "respondeat superior theory." The Court of Errors and Appeals then quoted from a prior New Jersey case as authority for the proposition that New Jersey follows the qualified immunity rule:

> In our state we have adopted and followed what we believe to be the majority view; i.e., the public

> policy theory. Thus we deny the right of recovery on the part of those who have a valid claim against a charitable institution, based on actionable negligence, but who are either the recipients of the benefactions, or the beneficiaries of the charitable institution sought to be held liable; but we permit the right of recovery against charitable institutions, for their actionable negligence, on the part of those unconcerned in and unrelated to that which the donor brought into being or supports in operation.

Therefore, said the Court of Errors and Appeals, the decision in this case comes within a narrow compass—was the respondent, a private nurse engaged for and paid by a private paying patient in a charitable hospital, a stranger to or a beneficiary of the charity?

The defendant contended that the plaintiff was in a legal sense a beneficiary of the charity. It conceded that if she was a stranger to the charity the judgment in her favor was well grounded. The argument, in brief, was that the plaintiff's association with the hospital was advantageous to her, in that she obtained employment through the nurses' registry maintained by the hospital and that the nurses' registry was maintained without cost to her, and gave her a preference in employment. This did not make her a participant in the hospital's bounty, however, concluded the court. She was paid by her patient, who also paid the hospital for her meals served while she was in attendance on the patient. While it was no doubt of advantage to the nurse to be on the registry, it was perhaps of more advantage to the hospital to have nursing service available, for it is common knowledge that in recent years hospitals have been confronted with a serious problem due to the shortage of nurses. But however this may be, the nurse in the service of the private patient was not a beneficiary of the charity in the legal sense. She therefore was an invitee of the hospital and a stranger to the charity, and the hospital owed her the duty of ordinary care in maintaining the premises in a reasonably safe condition. Accordingly the judgment in favor of the plaintiff was affirmed.—*Rose v. Raleigh Fitkin-Paul Morgan Memorial Hospital-Ann May Foundation, 57, A. (2d) 29 (N. J., 1948).*

Chiropractic Practice Acts: Validity of Annual Registration Prerequisite.—The plaintiffs filed a bill to enjoin the defendant board of chiropractic examiners from enforcing the provisions of the chiropractic practice act relating to annual registration. From a judgment dismissing their complaint, the plaintiffs appealed to the Supreme Court of Wisconsin.

The chiropractic practice act of Wisconsin requires all licentiates to renew their licenses annually and provides further that at the time of such annual renewal the applicant shall present satisfactory evidence to the board that he has, during the preceding year, attended at least one of the two day educational programs conducted, supervised and directed by the Wisconsin Chiropractic Association. The plaintiffs alleged that there are two statewide voluntary organizations in Wisconsin which licensed chiropractors may join. One is the Wisconsin Chiropractic Association and the other the Wisconsin Chiropractors Society. Each has a substantial membership and each provides an annual educational program. The Wisconsin Chiropractic Association requires a fee of $10 from each person who attends its annual educational program, which is the program a chiropractor must attend in order to have his annual license renewed. It is alleged that the statute does not authorize the charging of any fee and certainly not a fee in excess of the cost, which it is claimed this fee is. The plaintiffs state that they are ready and willing to pay the annual fee of $5 to the state for renewal of their licenses but claim that the portion of the statute which requires annual attendance at the educational program provided in the statute in order to have their licenses renewed is in violation of their constitutional rights and deprives them as citizens of their rights and property without due process of law.

The state has the power, said the Supreme Court, to provide for the general welfare of its people and in so doing to prescribe reasonable qualifications to be complied with before a person may engage in or carry on any trade or profession. The fact that a person is once licensed does not create a vested property right in the licensee, as advancements in the trade or profession may require additional conditions to be complied with if the general welfare of the public is to be protected.

The respondents argued that the legislature has the right to decide whether advancements in their profession require those engaged in its practice to attend educational programs in order to continue practicing. To this we agree, said the Supreme Court. If the legislature had provided that any chiropractor desiring to have his annual license renewed must attend an educational program approved by the state board of examiners in chiropractic we would have no difficulty with it, or if the legislature had adopted a standard which the program must meet it could well be argued that this would be sufficient. The statute in question goes far beyond this, said the Supreme Court. It provides who shall give the educational program that must be attended and gives them complete control of the nature of the program. Respondent would not argue that the legislature may require a person to be a graduate of one certain medical school in Wisconsin or one certain dental school in Wisconsin in order to be able to obtain a license to practice his profession in this state. This statute comparatively so provides. It provides where he must take limited postgraduate work each year if his license to practice is to be renewed. It requires the licensee each year to attend one day of the educational program provided by the Wisconsin Chiropractic Association, a voluntary organization not primarily engaged in the educational field. We do not mean to indicate that the program offered is not an excellent program and well worth attendance by every member of the profession. The difficulty is that the legislature has fixed no standard of a program which must be attended nor has it delegated to any board the authority to approve the program to be offered. It has merely provided by whom the program shall be given. In a California case, where the statute provided that the state board of medical examiners should be elected from three certain medical societies, while upholding the statute the court said it "could not be upheld at all if it were put upon the ground that in so doing the state is acting for the benefit of any one of all of the medical societies or schools of medicine existing in the state." We conclude, said the Supreme Court, that the state here was acting for the benefit of the association primarily, which is not within the legitimate exercise of police power. Accordingly the judgment of dismissal was reversed and the cause remanded with directions to enter judgment in favor of the plaintiffs.—*State ex rel. Week v. Wisconsin State Board of Examiners in Chiropractic, 30 N. W. (2d) 187 (Wis., 1947).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

47:1-134 (Jan.) 1948. Partial Index

Mechanics of Droplet Nuclei Infection. W. F. Wells. -p. 1.
*Treatment of Head Lice with MYL and DDT Louse Powders and NBIN Emulsion. G. W. Eddy. -p. 29.
Control of Schistosomiasis Japonica. W.H. Wright, P.M. Bauman and N. Fry. -p. 33.
Observations on Safety of Multiple Antigen Preparations. V. K. Volk. -p.53.
Vaccination Against Q Fever. J. E. Smadel, M. J. Snyder and F. C. Robbins. -p. 71.
Survival of Virus of Common Cold in Specimens Collected from Naturally Acquired Cases of Common Cold. M. Pollard, C. U. Dernehl and C. D. Caplovitz. -p. 103.

Treatment of Head Lice.—Eddy reviews observations in over 1,000 natural infestations of head lice treated during 1944 and 1945 in Illinois and Indiana with three pediculicidal preparations, all of which had been adopted by the army during the war. Most of the persons treated were school children, but many parents and children under school age were also treated. The MYL formula is composed of 0.2 per cent pyrethrins (from a 20 per cent concentrate), 2 per cent N-isobutylundecylenamide (IN-930), 2 per cent 2,4-dinitroanisole and 0.25 per cent "phenol S" (a mixture of isopropyl and diisopropyl cresols) in pyrophyllite. The DDT powder contains 10 per cent of DDT in pyrophyllite. The NBIN emulsion is prepared from a concentrate containing 68 per cent of benzyl benzoate, 14 per cent of Tween 80 (polyoxyalkylene ether of sorbitan mono-oleate), 12 per cent of ethyl aminobenzoate and 6 per cent of DDT. One part of the concentrate is diluted with 5 parts of water before using. All the persons treated were infested with either lice or eggs. Before treatment only 20 of the 222 persons treated with the MYL powder were found to harbor lice; 63 of the 178 treated with the DDT powder had active forms present; and 171 of the 636 treated with the NBIN emulsion were found to be infested with lice. Probably motile forms were present in many instances but were not detected. On examination eight to ten days later no live lice were found following the use of DDT or NBIN, but on 3 persons treated with MYL live lice were present. The MYL powder cannot be depended on in all instances to give complete control in one application.

American Journal of Tropical Medicine, Baltimore

28:1-174 (Jan.) 1948. Partial Index

Immunization of Monkeys Against Malaria by Means of Killed Parasites with Adjuvants. J. Freund, K. J. Thomson, Harriet E. Sommer and others. -p. 1.
*Efficacy of Chloroquine, Quinacrine, Quinine and Totaquine in Treatment of Plasmodium Malariae Infections (Quartan Malaria). M.D. Young and D.E. Eyles. -p. 23.
Homogeneity or Heterogeneity of Plasmodium Vivax Infections Acquired in Highly Endemic Regions. M.F. Boyd and S.F. Kitchen. -p. 29.
*Transmission of Wuchereria Bancrofti by Anopheles Darlingi in the American Tropics. G. Giglioli. -p. 71.
Studies on Cyclic Passage of Yellow Fever Virus in South American Mammals and Mosquitoes. IV. Marsupials (Metachirus Nudicaudatus and Marmosa) in Combination with Aedes Aegypti as Vector. Mary B. Waddell and H. M. Taylor. -p. 87.
Chloroquine in Amebiasis. N. J. Conan Jr. -p. 107.
Protein Hydrolysate-Enriched Media for Propagation of Trichomonas Vaginalis (Donné). J. J. Lash. -p. 111.
Conditions for Drug Testing in Experimental Schistosomiasis Mansoni in Mice. M. Schubert. -p. 121.
Typhus in Colombia: Survey of Four Towns by Complement Fixation Test. November 1946. J A. Montoya, P. P. Osejo and N. H. Topping. -p. 163.

Efficacy of Chemotherapy in Quartan Malaria.—Young and Eyles point out that because of its low prevalence in most parts of the world and because of its being less dramatic than the other forms of malaria, infection due to Plasmodium malariae, or quartan malaria, has received less attention in experimental chemotherapy. The general impression seems to be that the parasites of P. malariae in the peripheral blood stream tend to resist the action of drugs longer than the other malarial parasites. The object of the present report is to compare the effects of quinacrine hydrochloride ("atabrine"), quinine sulfate, totaquine and a newer drug, chloroquine (SN 7618: 7-chloro-4-[4-diethylamino-1-methylbutylamino] quinoline), on this species of malarial parasite. Infections were induced by injections of malaria-infected blood into 79 neurosyphilitic patients. The authors then tested the efficacy of chloroquine, quinacrine, quinine and totaquine. Chloroquine gave the best results. Quinacrine was better than quinine. Totaquine gave the poorest results. P. malariae responded relatively slowly to all the drugs tested. Using chloroquine regimens, patients were fully cleared of P. vivax in the peripheral blood much faster than of P. malariae, even though the densities of the P. vivax parasites were several times greater at the beginning of treatment.

Transmission of Wuchereria Bancrofti.—Giglioli says that in a recent study of the house-frequenting habits of the mosquitoes of the coastland of British Guiana it was found that only three of the many species inhabiting this region can be regarded as habitual house frequenters and man biters. These are Culex fatigans, Anopheles darlingi and Aedes aegypti. The work here reported was undertaken to establish the relative roles of these three species in the transmission of Wuchereria bancrofti. A. darlingi is just as suitable a host for Wuchereria as C. fatigans, its classic vector; the specific anthropophilic feeding habits which cause A. darlingi to be the most effective malaria carrier of Equatorial America obviously also make this mosquito a particularly dangerous vector of filariasis. Attempts to infect Aedes aegypti experimentally failed entirely, and the negative role of this species in the transmission of Wuchereria was confirmed.

Bulletin of John Hopkins Hospital, Baltimore

82:81-356 (Feb.) 1948 Partial Index

Studies on Physiology, Biochemistry, and Cytopathology of Cornea in Relation to Injury by Mustard Gas and Allied Toxic Agents: I. Introduction and Outline. J.S. Friedenwald and A.C. Woods. -p. 81.
Primary Reaction of Mustard with Corneal Epithelium. J.S. Friedenwald, R.O. Scholz, A. Snell Jr. and Sylvia G. Moses. -p. 102.
Histopathology of Ocular Lesions Produced by Sulfur and Nitrogen Mustards. A.E. Maumenee and R.O. Scholz. -p. 121.
Effects of Mustard and Nitrogen Mustard on Mitotic and Wound Healing Activities of Corneal Epithelium.

J.S. Friedenwald, W. Buschke and R.O. Scholz. -p. 148.
Effect of Histamine and Related Substances on Cohesion of Corneal Epithelium. H. Herrmann. -p. 208.
Loosening of Corneal Epithelium After Exposure to Mustard. H. Herrmann and Fay H. Hickman. -p. 213.
Studies on Non-Protein Nitrogen in Cornea. H. Herrmann and Sylvia G. Moses. -p. 295.
Comparison of Effects of Mustard, Ultraviolet and X-Radiation, and Colchicine on Cornea. J.S. Friedenwald, W. Buschke and Sylvia G. Moses. -p. 312.
Summary and Some Possible Interpretations. J.S. Friedenwald. -p. 326.

Cancer Research, Baltimore

7:321-416 (June) 1947. Partial Index

Changes in Reducing Power of Serum or Plasma of Patients with Malignant Neoplastic Disease. M.M. Black. -p. 321.
Activity of Catheptic Enzymes in p-Dimethylaminoazobenzene Hepatomas. P.C. Zamecnik and M.L. Stephenson. -p. 326.
Studies in Carcinogenesis with Azo Compounds: III. Action of (A) Four Azo Compounds in Wistar Rats Fed Restricted Diets; (B) N,N-Diethyl-p-Aminoazobenzene in Mice. A.H.M. Kirby. -p. 333.
Tumor of Lung in Rats Following Injections of Urethane (Ethyl Carbamate). M.F. Guyer and P.E. Claus. -p. 342.
Anlage Tumors of Salivary Glands. B. Halpert and C.D. Tool. -p. 346.
Changing Cancer Death Rate. Evelyn A. Potter. -p. 351.
Germinoma of the Pineal: Its Identity with Germinoma ("Seminoma") of Testis. N.B. Friedman. -p. 363.
*Therapeutic Use of Antireticular Cytotoxic Serum (A.C.S.) in Hodgkin's Disease. J. Skapier. -p. 369.
Effect of Ultraviolet Irradiation on Carcinogenic Potency of Certain Hydrocarbons. J. Egelbreth-Holm and S. Iversen. -p. 372.
Failure of Hyaluronidase to Increase Invasiveness of Neoplasms. D.R. Coman, M. McCutcheon and I. Zeidman. -p. 383.
*Apparent Anticarcinogenic Action of Lanolin. I. Berenblum and R. Schoental. -p. 390.

Antireticular Cytotoxic Serum in Hodgkin's Disease.—The study which Skapier undertook was to determine the therapeutic value, if any, of antireticular cytotoxic serum (A.C.S.) in a disease specifically involving the reticuloendothelial system, such as Hodgkin's lymphogranuloma, which is regarded as a malignant type of reticuloendotheliosis of unknown causation. Antireticular cytotoxic serum was used in the treatment of 22 selected patients with Hodgkin's disease, but it did not prove to be a curative agent in this disease. However, the majority of the patients treated showed improvement in the general condition, such as gain in body weight, favorable changes in the sedimentation rate and blood morphology. The author thinks that antireticular cytotoxic serum may be considered a valuable adjunct to other accepted methods of therapy in the treatment of Hodgkin's disease.

Apparent Anticarcinogenic Action of Lanolin.—Berenblum and Schoental point out that because some investigators observed that addition of wool fat (anhydrous lanolin) to oils or tars often led to a reduction in their neoplastic response, the use of this agent was recommended as a preventive against occupational cancer. The authors made further investigations on this problem and were able to confirm the striking diminution in the carcinogenic potency of methylcholanthrene, which occurs when wool fat is used as the diluent. This was found to operate also in connection with another carcinogen 9,10-dimethyl-1,2-benzanthracene. In both cases, however, the inhibitory effect was completely nullified when the concentration of the carcinogen was raised. Furthermore, in the lower concentrations, analogous diminution in carcinogenic potency was obtained by substituting liquid paraffin for wool fat as diluent. These results are incompatible with the idea that the inhibitory effect of the latter constitutes a specific anticarcinogenic action. They are readily accounted for on grounds of inadequate concentration. In view of this, the use of wool fat as a preventive measure against occupational cancer would seem to be of doubtful value.

Cincinnati Journal of Medicine

29:1-76 (Jan.) 1948

Diagnosis and Treatment of Brucellosis. W. W. Spink. -p. 1.
Student and His Role in Medical Education. C. D. Aring. -p. 15.

29:77-142 (Feb.) 1948

Role of Practicing Physician in Prevention of Disease with Particular Reference to Ten Point Program of Academy of Medicine. T.J. LeBlanc. -p. 77.
Carcinoma of Large Intestine. L. J. Szary. -p. 97.

Journal of Bone and Joint Surgery, Boston

30-A:1-262 (Jan.) 1948. Partial Index

Mechanism and Treatment of Fractures of Calcaneus: Open Reduction with Use of Cancellous Grafts. I. Palmer. —p. 2.
Slipped Epiphysis in Adolescent Hip: Reconsideration of Open Reduction. P.H. Martin.—p. 9.
Operative Therapy for Slipped Upper Femoral Epiphysis: End-Result Study. C.E. Badgley, A.S. Isaacson, J.C. Wolgamot and J.W. Miller.—p. 19.
Summary of Results of Bone Grafting for War Injuries. R.C. Farrow.—p. 31.
Internal Contact Splint. G.W.N. Eggers.—p. 40.
Experimental Study of Fracture Sites. W.H. Ainsworth and N.E. Wright.—p. 48.
*Anatomic Study of Mechanics, Pathology and Healing of Fracture of Femoral Neck: Preliminary Report. A. Farkas, M.J. Wilson and J.C. Hayner.—p. 53.
Homografts in Orthopedic Surgery. M.O. Henry.—p. 70.
*Mechanism of Injury and Distribution of 3,000 Fractures and Dislocations Caused by Parachute Jumping. R. Ciccone and R.M. Richman.—p. 77.
Styloidectomy of Radius in Surgical Treatment of Non-Union of Carpal Navicular: Preliminary Report. L. Barnard and S.G. Stubbins.—p. 98.
Disturbance of Longitudinal Growth Associated with Prolonged Disability of Lower Extremity. D. Ross. —p. 103.
Hypermobile Flat Foot with Short Tendo Achillis. R.I. Harris and T. Beath.—p. 116.
Structural Patterns of Callus in Fractures of Long Bones. I. With Reference to Healing After Internal Fixation. E.M. Bick.—p. 141.
Cyst-Like Lesions of Carpal Bones, Associated with Ununited Fractures, Aseptic Necrosis, and Traumatic Arthritis. A.K. Rodholm and D.B. Phemister.—p. 151
Plastic Repair of Extremities by Non-Tubulated Pedicle Skin Flaps. J.M. Converse.—p. 163.
Formation of New Bursae with Cellophane. C.L. Wilson. —p. 195.
Interinnomino-Abdominal Amputations: Report of 12 Cases. N.R. Beck and W.H. Bickel.—p. 201.
Resection of Obturator Nerve for Relief of Pain in Arthritis of Hip Joint. E.B. Kaplan.—p. 213.

Fracture of the Femoral Neck.—Dissection and roentgenographic analysis of the upper portion of the shaft and neck of the femur revealed to Farkas and his associates a highly independent laminar bony system, which begins from 2 to 4 cm. below the lesser trochanter and ends in fanlike fashion at the cartilaginous plate of the head. This proved to be the internal weight-bearing system of the proximal portion of the femur. This system undergoes slow resorption in its distal portion after middle age, but it never disappears. On the roentgenogram it can be seen throughout life from its distal to its proximal end. Microscopically, it consists of a great number of laminas and bone cells, and a rich endosteal lining; hence the speed with which it is capable of new bone formation. Mechanically, the internal weight-bearing system is a compression system, and during weight bearing it is to be found almost in the vertical plane. Preceding adduction fractures, the internal weight-bearing system is resorbed and replaced by cortical bone in its entire distal portion. Its proximal end remains spongy, with laminar character. The separation occurs at the site where the spongy proximal portion begins and the distal cortical portion ends.

In abduction fractures the internal weight-bearing system suffers only trauma, but otherwise it is strong. This explains the rapid healing of such fractures. On the basis of the anatomy and pathology of the femoral neck, two types of fracture may be distinguished: (1) compression fractures, comprising the abduction, intermedial and adduction fractures, and (2) subcapital separations, represented by most fractures of the aged. The prognosis of the compression fractures is good, if the fragments are kept in good apposition and fixation in plaster, in Russell traction or by nailing. For the treatment of the adduction fractures, a method with a perforated (sieve) sublay graft has been developed.

Fractures and Dislocations Caused by Parachute Jumping.--This survey by Ciccone and Richman describes 3,000 fractures and major injuries to soft tissue as the result of parachute jumping, with particular reference to the traumatic mechanisms involved. Almost all injuries involve weight-bearing structures and can be attributed to four basic traumatic mechanisms: (1) torsion plus landing thrust; this is by far the most common mechanism of injury and is responsible for a chain of related injuries, extending from the toes to the hip. (2) Backward landing; vertebral compression fractures and head injuries characterize this mechanism of injury. (3) "Opening shock" is a mechanism of injury peculiar to parachute jumping. The violent abduction stress causes many ligamentous tears and even fractures of the extremeties. (4) Violent vertical landings, occasional parachute malfunctions increase the landing impact and cause severe multiple fractures of the legs and spine. One half of all parachute fractures involve the ankle mortise. The most prevalent mechanism of injury is external rotation, which, together with abduction, accounts for approximately 75 per cent of fractures at the ankle. The entire lower extremity shows a preponderence of external-rotation injuries. This would imply a structural weakness of the limb as a whole,—a lack of adaptive resiliency to the stress of external torsion. A classification of fractures based on etiologic stresses is more useful than one based on anatomic location. Recognition of the etiologic stresses provides a rational approach to treatment.

Diseases of Chest, Chicago

14:1-160 (Jan.-Feb.) 1948

*Tuberculosis of Trachea and Major Bronchi. H C. Sweany and H. Behm.—p. 1.

Studies of Venous Pressure, Vital Capacity, Circulation Times and Electrocardiograms in Course of Pulmonary Collapse Therapy. J. P. Levinson, D. M. Caldwell, L. H. Hetherington and C. H. Marcy.—p. 19.

Right Heart Failure After Thoracoplasty. A. Hurst and H. M. Maier.—p. 29.

*Synergism Between Mycotic and Tuberculous Infections of Lungs. A. E. Greer.—p. 33.

Multiple Simultaneous Acute Putrid Lung Abscesses. A. H. Aufses.—p. 41.

Tuberculosis in Pediatric Practice. L. F. Hill.—p. 46.

*Silicosis as Industrial and Compensation Problem in British Columbia. C. H. Vrooman.—p. 63.

Pneumococcus Pneumonia and Its Complications. E. L. Bruck.—p. 73.

Lung Abscess (Surgical Aspects). P. C. Samson.—p. 79.

Bronchiectasis. J. J. Singer.—p. 92.

Calcium Ribonate and Vitamin C (Nu 240-10) in Treatment of Tuberculosis. J. B. Andosca and J. A. Foley.—p. 107.

Cystic Disease of Lung with Report of Case. P. A. Theodos.—p. 115.

Legislative Implications of Adequate Tuberculosis Control. J. W. Laws.—p. 121.

Necropsy Incidence of Tuberculosis in Hospital for Mentally Ill. T. J. Moran.—p. 132.

Tuberculosis of Trachea and Bronchi.—Sweany and Behm say that with the increase in the use of the bronchoscope many hitherto unsuspected cases of tracheobronchial tuberculosis have been discovered in patients previously thought to have only pulmonary tuberculosis. Notwithstanding the importance of bronchoscopy, it has been necessary to resort to postmortem examination to determine the large incidence of these complications. This report involves the analysis of 667 necropsy specimens of pulmonary tuberculosis in which the trachea and the main bronchi were systematically studied. Gross evidence of tuberculosis was found in 377 cases (56.5 per cent). Microscopic study of a sample of grossly negative specimens gave an estimated figure of 37.5 per cent of lesions in the remaining 290 cases, thereby increasing the positive findings of all cases to 72 per cent. The incidence was increased in the young age groups and in the female sex The pathogenesis seemed to be best explained by a direct implantation of bacilli in the mucous glands, or through breaches in the epithelium. The location of lesions in the tracheobronchial tree was more or less random, although points of stress (larynx), posterior aspects of the tracheobronchial tree and areas in proximity to cavities seemed to be affected most. The nature of the involvement was diffuse superficial infiltration in 12 cases; diffuse and deep infiltration and ulceration in 85 cases; circumscribed ulceration in 265 cases; fibroid stenosis in 5 cases; perforation in 6 cases, and caseous bronchitis in 4 cases. The hope for the future of tuberculous tracheobronchitis seems to be for early bronchoscopic study of all cases, early diagnosis and early treatment in positive cases by thoracoplasty or streptomycin, or both.

Synergism Between Mycotic and Tuberculous Infections of Lungs.—Greer aims to refute the impression that coexisting fungi are harmless saprophytic invaders and to advance added data to support the premise that an infection of the lungs with pathogenic fungi in association with a tuberculous infection of the lungs is not harmless and coincidental, but that it definitely increases the activity and virulence of the tuberculous process. He discusses the commensal relationship between fungus and tuberculous infections of the lungs. The coexistence of these two infections produces a more rapidly fatal issue in tuberculous persons than one should expect from the duration of the disease process in the lungs. Fungi from the expectorated sputum are usually saprophytic. It is best to obtain the sputum specimens by intratracheal aspiration and to subject the fungus to animal inoculation if there is any doubt regarding its pathogenicity. Physicians should search diligently for coexisting pathogenic fungi in every tuberculous patient whose clinical course is unusually rapid or prone to relapse. In 5 among several hundred patients in whom tuberculosis had been diagnosed clinically the author found pathogenic fungi in the tracheal secretions, although tubercle bacilli were never recovered from these 5 patients. The mycelial fungi are found more frequently than yeastlike fungi as the etiologic agents of pulmonary mycoses associated with pulmonary tuberculosis. All ideas dealing with the cooperative relationship between the tubercle bacilli and fungi existing together in diseased tissuee are highly speculative, as little, if anything, is known regarding such interacting or interplaying processes. The investigations reported here would suggest that the association of a fungous infection of the lungs in a patient having pulmonary tuberculosis would augment and accelerate the activity of the tubercle bacilli either directly or by lowering the vitality and resistance of the patient.

Silicosis in British Columbia.—Vrooman says that in 1935 a survey was made of five of the leading metalliferous mines to obtain a cross section of the prevalence of silicosis. Of those examined, the total number of miners who had worked five years or more underground was 703. Of that number 105 had silicosis. Nearly two thirds of these had the first stage of silicosis, and the others showed signs of disability. Following this survey, silicosis was made a compensable disease. It was made compulsory for mine owners to have their underground employees given a yearly examination with roentgenogram of the chest. These examinations are made by the mine physicians. The examination forms and roentgenograms are forwarded to the Workmen's Compensation Board and reviewed there by the silicosis referee, who may cancel or reissue any certificate if he considers it advisable. The policy is that all patients with suspected active tuberculosis shall be excluded. Those whose silicosis shows progression or is complicated by tuberculosis are advised to apply for compensation, and they are removed from underground work. Those with early silicosis which is not showing progression, especially the older men, are issued certificates if they wish to continue to work underground. The disease of these patients does not progress much faster if they were allowed to remain at the work to which they are accustomed than if they are removed. It is an economic disaster to remove men from work they have been doing for fifteen or twenty years and ask them to make a living at something else. Most of the mines of British Columbia are now reasonably safe. In September 1937 the Workmen's Compensation Board appointed a competent dust inspector to visit the mines at regular intervals and to make dust counts and recommendations regarding improvement of ventilation.

Journal of Neurophysiology, Springfield, Ill.

11:1-56 (Jan.) 1948

Total and Free Acetylcholine in Rat Peripheral Nerves. Marina Prajmovsky and J.H. Welsh.—p. 1.
Absence of Spinal Cord Regeneration in Cat. L.M. Davidoff and J. Ransohoff.—p. 9.
Cingular Gyrus: Area 24. A.A. Ward Jr.—p. 13.
Phasic Inhibition of Light Reflex of Pupil During Retinal Rivalry. E.H. Bárány and U. Halldén.—p. 25.
Occipital Alpha Rhythm: Study of Phase Variations. R. Cohn.—p. 31.
Some Respiratory, Vascular and Thermal Responses to Stimulation of Orbital Surface of Frontal Lobe. J.M.R. Delgado and R.B. Livingston.—p. 39.

Journal of Neurosurgery, Springfield, Ill.

5:1-106 (Jan.) 1948. Partial Index

*Observations on Standardizing Surgical Management of Intracranial Suppuration. E. S. Gurdjian and J. E. Webster.—p. 1.
Faulty Sensory Localization in Nerve Regeneration: Index of Functional Recovery Following Suture. G. L. Hawkins.—p. 11.
Cranioplasty and Post-Traumatic Syndrome. E. G. Grantham and H. P. Landis.—p. 19.
*Residual Sympathetic Pathways After Paravertebral Sympathectomy. B. S. Ray and A. D. Console.—p. 23.
Upward Transtentorial Herniation of Brain Stem and Cerebellum Due to Tumor of Posterior Fossa. With Special Note on Tumors of Acoustic Nerve. A. Ecker.—p. 51.
Nerve Regeneration: Comparative Experimental Study Following Suture by Clot and Thread. I. M. Tarlov and W. Boernstein.—p. 62.

Surgical Management of Intracranial Suppuration.—Since penicillin and sulfonamide drugs have been used for treatment, Gurdjian and Webster have treated by operation 16 patients with intracranial suppuration. These included 1 left frontal extradural abscess, 3 subdural abscesses, 11 cerebral abscesses and 2 cerebellar abscesses. One instance of cerebral abscess was associated with subdural suppuration. Most of these patients had a history of infection of 1 month's duration or longer. The analysis of the records of these patients has emphasized the desirability of a step by step plan of surgical management for intracranial suppuration. Such a plan employs the simplest surgical procedure first. This consists of tapping the abscess and the instillation of penicillin. Time is allowed for resistance of the host to develop. Repeated tapping is usually required. If tapping and instillation of penicillin are not successful, excision of the abscess can be undertaken. Ventriculography may be used to localize the extent of the purulent mass. Excision of the abscess can then be done through an appropriate osteoplastic craniotomy. In the presence of a subdural abscess the plan of multiple trephine openings, exploring the cerebral surface bilaterally, is successful. Penicillin may be instilled through a rubber catheter. After the injection the tube is removed. If a cure appears to be effected, a pneumoencephalogram before discharge from the hospital should rule out any remaining focus and particularly a latent associated cerebral abscess. The wounds may be reopened for inspection of the subdural space and instillation of penicillin.

Residual Sympathetic Pathways After Paravertebral Sympathectomy.—Ray and Console designed a simple dermometer for their studies on skin resistance. They conclude that after excision of the paravertebral ganglionated chain, regardless of the extent of the excision, residual sympathetic pathways to the lower extremity remain. These pathways do not pass through the paravertebral sympathetic chain. Sympathetic activity is present in all patients in the twelfth thoracic to the third lumbar dermatomes after standard sympathectomies and may be interrupted by anterior rhizotomy, spinal anesthesia, tetraethylammonium and procaine block or division of the lumbar nerves. There may be similar pathways distributed to the face, the lower sacral dermatomes, the axilla and first and second thoracic dermatomes, and scattered areas on the trunk. After paravertebral sympathectomy these pathways become manifest only after a process of readjustment takes place. An incomplete denervation may therefore mimic complete denervation for a period up to three months. Returning sympathetic activity within this period is due to readjustment. Later return may be due to the same mechanism, to invasion by fibers from adjacent areas not denervated or to regeneration. It is doubtful if any of the present methods of sympathectomy result in a complete interruption of sympathetic pathways. Long-lasting sympathetic denervation of a part of the body may require complete denervation of not only the desired area but the adjacent areas.

Kansas Medical Society Journal, Topeka

49:1-52 (Jan.) 1948

Present Status of Surgical Treatment of Duodenal Ulcer. E.S. Judd Jr.—p. 1.
Stilbestrol Medication. R.L. Newman.—p. 10.
Digitalis Glycosides, Ouabain and Strophanthin in General Practice. J.D. Rising.—p. 14.
Mass Chest Survey at University of Kansas Medical Center Out-Patient Dispensary. J.W. Burnett and G.M. Tice.—p. 19.

49:53-92 (Feb.) 1948

- *Pitfalls in Treatment of Diabetic Coma. A. Marble.—p. 53.
- Surgery of Pancreatic Cysts. W.M. Mills and D.C. Wakeman.—p. 57.
- Affinity of Nerve Fiber for Tetanus Toxin. P.G. Roofe.—p. 60.
- Different Type of Stomach Tube. C.Y. Thomas Jr.—p. 62.

Treatment of Diabetic Coma.—Marble shows that it is the careless patient, the patient with poorly controlled diabetes, in whom diabetic coma is most likely to develop. This indicates the importance of education of the patient and his family with regard to the disease. Patients make errors which may precipitate diabetic coma. Even well trained patients omit insulin during times of acute illness when food intake is scant. The patient, fearing hypoglycemia, reasons: "If I don't eat, I should not take insulin." The result is increasing hyperglycemia with the development of acidosis and eventual coma. Patients must be made to understand that in acute illness insulin must be continued, and if the illness is accompanied by fever an even greater dose of the drug may be necessary. The most treacherous pitfall in the treatment of diabetic coma is the danger of giving too little insulin, because of an unwarranted fear of hypoglycemia. As soon as the diagnosis is made, a preliminary large dose of unmodified insulin, at least 50 units and in most patients 100 units, should be given subcutaneously. A second common pitfall is the danger of not replacing adequately the fluid and electrolytes lost by diuresis and vomiting. Administration of dextrose during the first few hours of treatment is regarded by the author as another pitfall. He lists reasons why the use of dextrose parenterally during the first few hours has no place in treatment. When consciousness has been regained and an hour or two after vomiting has subsided, fluids by mouth should be begun. After preliminary trials with water, warm broths, thin gruel, tea with sugar, orange juice and ginger ale should be given at a rate of 100 to 150 cc. an hour. After the initial large dose of insulin has had the desired effect, further administration of insulin may be made, at first hourly and later at two, three or four hour intervals, according to the results of the Benedict test for sugar in urine. Within eighteen to twenty-four hours, a soft solid diet may be begun and use of protamine zinc insulin started.

Missouri State Medical Assn. Journal, St. Louis

45:73-168 (Feb.) 1948

Symposium on Industrial Health

- Medical Profession's Responsibility in Improvement of Industrial Health. R. A. Sutter. -p. 89.
- Industrial Dermatoses and the Economic Import. E. P. Monahan. -p. 91.
- Organization of an Industrial Medical Department. R. E. Kelly. -p. 94.
- The Plant Physician and His Industrial Preventive Medical Program Utilizing Industrial Hygiene Services of the Public Health Department. R. M. Brown and B. W. Lewis. -p. 98.
- National and State Industrial Health Program. W. S. Johnson. -p. 101.
- Importance of Industrial Health to the Nation. H. Strong. -p. 109.

New York State Journal of Medicine, New York

48:225-336 (Feb. 1) 1948

- *Treatment of Poliomyelitis in Acute and Convalescent Stages. Physical Therapy and Orthopedic Considerations. A. D. Gurewitsch, H. Hallock and R. J. Dugan. -p. 267.
- Effect of Drilling Neck of Femur in Legg-Perthes' Disease. I. Zadek and G. D. B. Berkett. -p. 273.
- Periarteritis Nodosa-Like Lesions in Tuberculosis Meningitis. M. G. Bohrod. -p. 275.
- Criteria of Healing in Fractures Following Internal Fixation. E. M. Bick. -p. 277.
- Untoward Effects of Newer Drugs. J. H. Talbott. -p. 280.
- Occurrence of Water-Soluble RH Substances in Body Secretions. J. F. Mohn and E. Witebsky. -p. 287.
- Prothrombin Time in Rheumatoid Arthritis. L. W. Granirer. -p. 291.
- Oxytocic Use of Methergine in Third Stage of Labor. J. E. Tritsch, E. Schneider and E. F. Longworth. -p. 293.
- Intracutaneous Influenza Vaccination. H. Vollmer. -p. 295.
- Pediatric Approach to Management of Allergic Eczema in Children. B. Ratner. -p. 296.
- Improved Device for Extensive ECG Exploration of Chest. H. R. Miller. -p. 300.
- *Hiatus Hernia Confused with Coronary Thrombosis. G. C. Linn. -p. 303.

Treatment of Poliomyelitis.—This discussion by Gurewitsch and his associates is based on the study of 552 paralytic patients in the acute and early convalescent stages who were treated from 1942 through 1946 at the New York State Reconstruction Home. Spontaneous pain can be eliminated by proper positioning of the patient and by measures of support. Pain on squeezing and on motion of a joint is best treated with moist heat. The authors have been prescribing hot packs extensively. Passive exercises to all joints are started from admission of the patient. With gradually subsiding pain the vigor of the passive motion is increased. Muscular reeducation should be graded carefully, and care should be taken to avoid exhaustion of a weak muscle. Ambulation is allowed as soon as it is considered that the upright posture and the effort of walking will not affect recovering muscles unfavorably. At first patients are placed on their feet in warm water up to the neck. This eliminates gravity and stimulates a multitude of postural reflexes without fatiguing muscles by weight bearing. By gradually reducing the level of the water, the amount of weight bearing is graded. Functional occupational therapy, given for the double purpose of recreation and training of muscles and skills, is used extensively in this phase. If deformities occur or increase in spite of the early application of heat and stretching, they must be corrected by methods of traction, wedging or turnbuckle casts. If deformities develop and will not yield to conservative means of therapy, surgical correction will be necessary.

Hiatus Hernia Confused with Coronary Thrombosis.—Linn reports 3 cases of hiatus hernia which were originally diagnosed as coronary thrombosis. These cases demonstrate that hiatus hernia may mimic angina pectoris and coronary thrombosis. The serious prognostic outlook in coronary thrombosis or angina pectoris makes it important that the true cause for thoracic pain be ascertained. The pain of hiatus hernia is probably initiated over the visceral afferent fibers that supply the esophagus and cardiac portion of the stomach or over the sensory afferent fibers from the diaphragm, contained in the phrenic, middle or lower thoracic nerves; thus, the pain is referred to the same segments as is cardiac pain. Overdistention or irritation of the herniated portion of the stomach may be responsible for the production of the anginal or coronary type of pain. It is important to remember that the angina-like pain of hiatus hernia is more apt to be associated with eating than with effort. The patient usually complains of a good deal of eructation and feels better when he is up and around.

North Carolina Medical Journal, Winston-Salem

9:1-60 (Jan.) 1948

Some Problems of Rural General Practitioner. B. B. Dalton. -p. 1.

Integration of Public Health Program With Preventive Aspects of Private Practice. G. T. Harrell. -P. 4.

Early Diagnosis of Uterine Malignancy. T. L. Lee and H. F. Fuller. -p. 9.

Use of Vaginal Smears in Diagnosis of Genital Cancer. J. R. Kernodle, W. K. Cuyler and W. L. Thomas.-p. 11.

Cellular Changes in Carcinoma of Prostate Following Hormonal Therapy. G. G. Gilbert. -p. 18.

*Granuloma Inguinale Treated with Streptomycin: Report of Case. S. Olansky, J. Farrington and Kathleen A. Riley. -p. 21.

Fluorine and Prevention of Dental Caries. Z. M. Stadt. -p. 23.

Routine Blood Cultures in Pediatrics. E. S. King. -p.30.

Atlantocranial Dislocation with Survival: Case Report J. W. Farthing. -p. 34.

Streptomycin in Granuloma Inguinale.—Olansky, Farrington and Riley say that although antimony compounds have been effective in the treatment of granuloma inguinale, adequate treatment with these drugs is difficult because of the long periods of time required and the toxic reactions which sometimes develop. The authors report the case of a Negro whose inguinal lymph nodes enlarged and broke down some months after he had had a "sore" on the glans penis. The serologic test for syphilis and the Frei and Ducrey tests for venereal lymphogranuloma were negative, but scrapings from the inguinal lesions showed Donovan bodies. The patient received an antimony preparation intravenously at irregular intervals, but the lesions became more extensive until he became incapacitated and was hospitalized. Streptomycin therapy in doses of 0.6 Gm. intramuscularly every four hours was started immediately. A total dosage of 32.4 Gm. was given. Continuous compresses of potassium permanganate in a dilution of 1:4,000 were applied to the lesions. On the third day of streptomycin therapy repeated smears for Donovan bodies showed diminution in their number. After the fifth day, no Donovan bodies could be demonstrated. When he was discharged the lesions were less tender and acute; beginning epithelization was visible. About a month later, he returned to the outpatient clinic remarkably improved. There was 75 per cent epithelization of the lesions, and the patient was comfortable enough to resume work. It is hoped that the treatment of additional cases by this method will prove that the initial good results are permanent.

Philippine Medical Association Journal, Manila

23:585-644 (Dec.) 1947 Partial Index

*Treatment of Herpes Zoster with Cobra Venom and Sulfanilamide. M. G. Tan and Antonia R. Ines-Tan. -p. 593.

Cobra Venom and Sulfanilamide in Herpes Zoster.—Tan and Ines-Tan used cobra venom and sulfanilamide in the treatment of 5 patients with herpes zoster. The initial dose of 1 cc. of the 1:10,000 dilution of cobra venom gave no relief, but the second dose of 1 cc. in the 1:5,000 dilution decreased the intense burning and itching pain in 2 of the patients. Complete relief from pain was obtained by a third dose (1:5,000) in 4 of the patients, whereas the other patient required two additional doses. The venom injections were given alternately into the deltoid region and into the buttocks. Simultaneously with the administration of cobra venom, the patients were given sulfanilamide in doses of 10 grains (0.65 Gm.) for adults and 5 grains (0.32 Gm.) for a girl aged 7 years, every four hours night and day until the eruption disappeared completely. All 5 patients were benefited, and there were no unfavorable reactions.

Southern Medical Journal, Birmingham, Ala.

41:1-98 (Jan.) 1948 Partial Index

*Testosterone in Treatment of Advanced Breast Cancer: Preliminary Report. H. W. Jones Jr.—p. 4.

Treatment of Boeck's Sarcoid with Nitrogen Mustard: Preliminary Report. G. E. Snider.—p. 11.

Treatment of Perforating Ulcers of Foot Complicated by Diabetes and Peripheral Vascular Disease. H.M. Kern. —p. 14.

*Endemic Typhus in Baltimore. J. W. Davis, W. H. Schulze and G. W. Schucker.—p. 21.

Subtotal Esophagectomy for Benign Stricture of Esophagus: Case Report of Unusually High Esophagogastric Anastomosis. C. J. Donald Jr. and C. H. Kessler.—p. 26.

Ainhum or Dactylolysis Spontanea: Report of Case. C. Young Jr.—p. 29.

Elimination of Non-Surgical Lesions in Brain Tumor Suspects: (A) Pseudo-Tumor Cerebri and (B) Papilledema Without Increased Intracranial Pressure (Optic Neuritis). J. M. Meredith.—p. 31.

Loeffler's Syndrome with Erythema Multiforme. C.F. Lehmann.—p. 37.

Standardization of Tonometers. J. S. Friedenwald.—p. 44.

Clinical Significance of Rh Factor. M. S. Sacks, W. J. Kuhns and Elsa F. Jahn.—p. 47.

Industrial Health in Postwar Era. S. J. Seeger.—p. 53.

Rehabilitation in Operation. H. A. Rusk.—p. 57.

Convulsions in Childhood: Practical Considerations. M. G. Peterman.—p. 62.

Testosterone in Breast Cancer.—To aid in determining the value of testosterone therapy of cancer of the breast, Jones made observations on 15 patients under treatment with this agent. Patients were given 300 mg. of the drug per week in divided doses. Three of 5 patients with metastases to the bone had clinical and roentgenographic evidence of healing; another had relief of pain but steady progression of the lesion; in 1 instance treatment was a complete failure. Two of 10 patients with extraskeletal metastases showed startling improvement, but the remainder were failures. The variability of response noted in this and other series of carcinoma of the breast treated with testosterone is not at all understood and warrants further study.

Endemic Typhus in Baltimore.--Davis and his associates say that the City Health Department of Baltimore has recorded 59 cases of typhus with 13 deaths during the last twenty years. In October 1946, after a lapse of nearly three years since report of a case of typhus, a disease unmistakably identified as endemic typhus developed in a child living in a crowded row-house. From this row, during the next four months, 5 more cases, 1 of them fatal, were reported. A physician participating in the necropsy of the fatal case contracted the disease. Diagnosis of endemic typhus was supported in each case by results of laboratory tests. The patients lived in a row of sixteen old houses located across from a railroad and truck terminal, where freight from areas of the country where endemic typhus is comparatively common is handled and unloaded. These houses had been remodeled under the Federal Homes Use program to provide housing for war workers. All families had access to the basements, where they did their laundry and deposited their garbage in uncovered containers. In remodeling the houses nothing had been done to make the basements ratproof. Numerous openings in the walls permitted rats to enter. Complement fixation tests on blood from persons living in the infected area indicated that missed cases of endemic typhus are not uncommon. To prevent spread of the outbreak, rats and fleas were eradicated and many exposed persons received endemic typhus vaccine. No new cases developed subsequently.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

21:1-54 (Jan.) 1948

Comparison of Lethal Effect of Neutrons and Gamma Rays on Mouse Tumors (a) by Irradiation of Grafted Tumors in Vivo, (b) by Irradiation of Tumor Fragments in Vitro. L.H. Gray, and J. Read. -p. 5.
Dosage Estimation and Distribution in Radium Treatment of Carcinoma of Cervix Uteri. New Method and Its Clinical Applications. M. Lederman and L.F. Lamerton. -p. 11.
Carcinoma of Cervix: Discussion on Value and Technic of Supplementary X-Ray Therapy. J.G. Winternitz. -p. 27.
Note on Some Biologic Aspects of Radiotherapeutic Treatment of Carcinoma of Cervix. P.C. Koller. -p. 41.
Cranioskeletal Dysplasia. N. Hajdu and R. Kauntze. -p. 42.

Lancet, London

1:1-48 (Jan. 3) 1948

Shock in Obstetrics. H. L. Sheehan. -p. 1.
Initiation of Cellular Infection by Influenza and Related Viruses. F. M. Burnet. -p. 7.
Ankylosing Spondylitis. W. Lennon and Isabella S. Chalmers. -p. 12.
*Action of Tetraethyl Ammonium Bromide. A. M. Boyd, G. R. Crawshaw, A. H. Ratcliffe and R. P. Jepson. -p. 15.
*Tetraethyl Ammonium Bromide in Hypertension and Hypertensive Heart-Failure. G. W. Hayward. -p. 18.
Folic Acid in Nutritional Anemia. J. W. D. Goodall, Hilda I. Goodall and D. Banerjee. -p. 20.
*Streptomycin in Human Plague. P. V. Karamchandi and K. Sundar Rao. -p. 22.

Tetraethyl Ammonium Bromide in Hypertension.—This investigation by Hayward was undertaken to determine whether the administration of tetraethyl ammonium bromide would be a useful preoperative test in the selection of hypertensive patients for sympathectomy. He found that its administration to patients with essential hypertension leads to a considerable fall in blood pressure in nearly all cases. This is caused by paralysis of the autonomic ganglions, with a resultant blocking of the efferent sympathetic vasoconstrictor impulses. After intravenous injection the blood pressure remains low for five to thirty minutes; and after intramuscular injection, for two to eight hours. Tetraethyl ammonium bromide is less effective than sympathectomy in producing a maximal degree of vasodilatation. Patients with hypertensive heart failure have temporary relief of orthopnea and dyspnea when the blood pressure is lowered with tetraethyl ammonium bromide. There is an increase in the vital capacity, tidal air and pulmonary ventilation per minute, with a fall in venous pressure. Pulmonary congestion is probably diminished as a result of the extensive peripheral vasodilatation. Tetraethyl ammonium bromide may be useful in the emergency treatment of acute left ventricular failure. In patients with chronic congestive failure the fall in urinary output which results from the lowering of blood pressure makes the use of tetraethyl ammonium bromide inadvisable at present.

Action of Tetraethyl Ammonium Bromide.—Boyd and his associates studied subjective phenomena and changes in pupils, blood pressure and pulse rate in 50 persons, 25 of whom served as controls. Of the other 25 patients, 15 had obliterative vascular disease with or without hypertension and 10 were subject to vasospastic episodes. The authors found that tetraethyl ammonium bromide has a limited practical value in the study of the peripheral vascular response to sympathetic block and in no way compares with such reliable and proved tests as local nerve block or paravertebral block.

Streptomycin in Human Plague.—Karamchandi and Sundar Rao report that 5 patients who were practically moribund with plague were treated with intramuscular injections of streptomycin, 0.125 Gm. being administered every three hours. The outbreak of plague occurred in the Anantapur district of Madras Presidency, and so far 152 cases have been observed, with 66 deaths. The 5 patients treated with streptomycin are all alive and well today. The streptomycin treatment was usually continued for three to four days. Most of the patients received a total of 4 Gm. of streptomycin. Improvement was usually noticeable after 1.5 Gm. had been given, or after about thirty-six hours. No adjuvants were given with the streptomycin and all cases had been bacteriologically verified as plague.

Medical Journal of Australia, Sidney

2:709-736 (Dec. 13) 1947

*Role of Spinal Fusion in Arthrogenic Sciatica: Review of 52 Cases. E. F. West. -p. 711.
Traumatic Dislocations of Hip. D. W. L. Parker. -p. 713.
Technic for Arthroplasty of Elbow Joint. A. C. Armstrong. -p. 716.
Poliomyelitis in Preventive Orthopedics. Jean MacNamara. -p. 717.
Preventive Orthopedics. Jean MacNamara. -p. 720.

Spinal Fusion in Arthrogenic Sciatica.—West reviews the position which the operation of spinal fusion holds in the treatment of that type of sciatica which is thought to be due to changes in the posterior intervertebral or apophysial articulations of the lower lumbar segment of the spine; he discusses 52 patients so treated. He is not dealing with herniation of the disk causing compression of a nerve root, the accepted treatment for which is removal of the disk substance. It is not his practice to follow this by fusion unless the disk is so much damaged as to lead to instability and arthritic changes in the posterior joints. In the cases under review, in the arthrogenic type the sciatica is presumably produced by irritation of the funicular segment of one or more nerve roots where these lie in close proximity to the arthritic apophysial joints, with associated vascular changes. Swelling and redness of a nerve root have been seen at operation in cases in which no protrusion of the disk could be found, but fusion has cured the condition. Thirty-seven of the 52 patients who have been subjected to fusion operation have been followed. In 26 of these the operation gave complete and lasting relief; in 7 others the results were fair and in 4 the treatment was a failure. One of these 4 patients died of paralytic ileus four days after operation. In 2 of the other 3, in whom the fusion was done with iliac bone, the bone has been absorbed and fusion has not occurred. The remaining patient appears to have good fusion. He has lost his sciatica but complains of pain, which appears to originate in the area from which the iliac bone was taken.

Dermatologica, Basel

94:264-384 (No. 5 & 6) 1947. Partial Index

Modification of Skin Temperature by Hot Drinks. W. Burckhardt and A. Steigrad.—p. 274.
Studies on Darkening of Freckles. Z. Felsher, L. Rubin and S. Rothman.—p. 280.
Peculiar Local Tissue Changes Following Intracutaneous Injection of Staphylococcal Vaccine. S. Hellerstrom.—p. 309.
Radium Treatment of Cicatricial Keloids. W. Lutz.—p. 315.

*Dermatoses and Porphyria. J. Gomez Orbaneja and H. Castro Mendoza.—p. 327.
*Desensitization in Urticaria Produced by Bread. H. Stauffer.—p. 352.

Dermatoses and Porphyria.—Gomez Orbaneja and Castro Mendoza investigated the possibility of a connection between the excretion of porphyria and dermatoses in which photosensitivity plays a part. No connection could be observed between the quantity of porphyria excreted and sensitivity to light. In some cases treatment with aminonicotinic acid resulted in improvement and was followed by an increased elimination of porphyrin.

Desensitization in Urticaria Produced by Bread.—Stauffer reports the case of a woman, aged 46, in whom urticaria developed, first on the arms, then over the entire body. Cutaneous tests with various foods proved negative, except those with bread. The patient was told to abstain from bread and was subjected to autohemotherapy. The urticaria disappeared and did not recur as long as the patient abstained from bread and from other foods made of dough. Desensitization with an antigenic extract made of bread was carried out and proved successful in that the patient was again able to eat bread and other foods prepared from flour without the development of urticaria. The preparation of the extract is simple. The author stresses that this form of desensitization is of great importance in medical practice.

Deutsche medizinische Wochenschrift, Stuttgart

72:689-720 (Dec. 19) 1947. **Partial Index**

*Deficient Diet and Diabetes Mellitus. O. Feuchtinger.—p. 689.
Immunity After *Immunization Against Diphtheria*. O. Guthof.—p. 707.
*Pulmonary Fibrosis Caused by Sillimanite. H. Gärtner and C. van Marwyck.—p. 708.
*Unusual Case of Acute Intoxication by Benzene. H. Robmann.—p. 712.

Deficient Diet and Diabetes Mellitus.—Feuchtinger describes observations on diabetic patients made during the latter part of the war and during the postwar period when the insulin supplies were reduced and the diet became steadily more restricted. At the time of the invasion and capitulation and during the first months of occupation by the allies, the daily dietary intake was frequently only 1,000 calories or less. During this time when diabetic persons were not provided with special additions to the famine rations, that is, from April 1945 to December 1945, the author studied 50 diabetic patients who had previously been under his observation. About half of them received insulin. He found that with one or two exceptions all patients with diabetes mellitus showed improvement in their metabolic status. There was a parallelism between the reduction in calories and the improvement in metabolism. The blood sugar decreased as did also the glycosuria and the insulin requirements. The improvement in the carbohydrate tolerance persisted in about half the patients after the dietary calories were somewhat increased.

Pulmonary Fibrosis Caused by Sillimanite.—Gärtner and van Marwyck point out that in the case of pneumonoconiosis under consideration it was first assumed that corundum might be the cause, but since corundum has been proved harmless, further studies were made on the factory dust as well as on a piece of lung tissue. The examination revealed similarity between the residue obtained from the pulmonary tissue and the dust found in a smelting furnace. This dust consisted of corundum, bauxite, amorphic silicic acid and a silicate that resembles sillimanite. Histologic studies revealed changes that have been produced in animals by sillimanite. The authors deduced that the harmful substance in the case under consideration was a substance resembling sillimanite, perhaps in connection with the amorphic silicic acid. Pneumococcus infection may have further complicated the fibrosis resulting from sillimanite.

Benzene Poisoning.—Robmann reports the case of a man who was found unconscious in a path between benzene tanks, where considerable quantities of purified benzene had leaked out. The patient was unconscious, the reflexes were abolished and the pupils were dilated and did not react. The breath had a benzene odor, and some parts of the clothing were saturated with benzene. After the patient had been undressed, nikethamide and oxygen were given. During an attack of tonoclonic convulsions, blood pressure was up to 200, whereas it had been 120 systolic and 70 diastolic at the time of admission. The pulse was regular but the count was increased. When the patient regained consciousness after forty-five minutes, he complained of headaches and dizziness. At the end of ninety minutes he experienced itching at the sites which had been in contact with the benzene. Blisters surrounded by red areas appeared. On the following day, pulse irregularities with a frequency of 100 per minute were observed and electrocardiography revealed arrhythmia on the basis of an auricular flutter and irregular extrasystoles of the left ventricle. The patient complained of pressure in the chest. Treatment with quinidine was instituted. The cardiac irregularities disappeared after several days, and the cutaneous lesions healed. The author points out that absolute arrhythmia resulting from auricular flutter is not characteristic for benzene poisoning.

Medicina, Mexico, D. F.

28:1-22 (Jan. 10) 1948. **Partial Index**

*Pharmacodynamic Properties of Tanglefoot (Karwinskia Humboldtiana). M. D. Rivero. -p. 1.

Pharmacodynamic Properties of Tanglefoot.—Tanglefoot (Karwinskia humboltiana) is frequently found in some states of the United States and Mexico. It is toxic for man and animals, mainly cattle, goats, sheep and chickens. Tanglefoot causes diarrhea, which appears early in the course of poisoning and then subsides. The greater toxicity of the plant is for the central nervous system, the fruit causing paralysis of the legs and later on paralysis of the whole body and death by asphyxia. The fruit causes nervous symptoms, hyperesthesia to temperature and to pain, somnolence and blindness in the course of paralysis. As a rule the poisoning follows a fatal course. Recovery occurs only in cases of poisoning from consumption of an extremely small piece of the fruit. Cases of collective poisoning have been reported in the literature, with an erroneous diagnosis of cases of rare epidemic diseases. The author carried on experiments on pigeons. From her results she concludes that: The poison substance is mainly concentrated in the teguments of the almond seed. It is soluble in chloroform sulfuric ether, methyl alcohol and benzene. The toxic substance causes selective damage on the brain stem of domestic pigeons. The time between poisoning and the appearance of toxic symptoms and the acuteness of the symptoms depend on the amounts ingested. The greater the doses of toxic substance the more rapid the absorption of the substance by the body and the appearance of symptoms and also the more acute the symptoms and course of the disease.

Book Notices

Dermatology in General Practice. By Sigmund S. Greenbaum, B.S., M.D., F.A.C.P., Professor of Clinical Dermatology and Syphilology, University of Pennsylvania Graduate School of Medicine, Philadelphia. Fabrikoid. Price, $12. Pp. 889, with 846 illustrations. F. A. Davis Co., 1914-16 Cherry St., Philadelphia 3, 1947.

A book of dermatology emphasizing the problems met in general practice is needed. It is still needed. As the choice of the experts of some of the special sections was fortuitous, the articles on peripheral vascular diseases, the exanthems and the diseases of the oral mucous membranes are excellent. The articles on pruritus and syphilis are also commendable. Attention is called to a short chapter on page 166 emphasizing that there is no reason to believe that inadequate surgery can be salvaged by anything short of a carcinocidal dose of irradiation. This is a valid statement regarding the problem of postoperative irradiation of cancer in any location

There are some controversial statements, which cannot go unchallenged: that the addition of cystine to the diet favors the growth of hair; that poor scalp hygiene plays a role in premature alopecia; that massaging and ultraviolet ray are effective in the treatment of premature alopecia, and male hormones in senile baldness (remember that eunuchs are not bald); that tar soap is preferable as a shampoo for dry scalp; that dull hair is the result of insufficient brushing and combing; that scalp massage improves circulation in the hair follicles; that henna is a safe vegetable hair dye; that psoriasis is a disease of the healthy person; that the etiologic basis of rosacea (a vasomotor instability) is closely allied to that of acne vulgaris (a disease of the pilosebaceous apparatus); that some dermatoses are the patient's solution of an emotional conflict and that some are best left untreated; that acetylsalicylate seldom produces cutaneous lesions, and that pityriasis rosea is not contagious.

It would seem also that the general practitioner needs to be informed more about drug eruptions caused by sulfonamide drugs, gold, penicillin and barbiturates. Among important omissions are the following: quinacrine is the probable cause of "jungle rot"; patients with erythema nodosum should be put to bed; use large hot fomentations for boils; proper footgear for dermatomycosis pedis and pressure for periarticular cysts. The inclusion of multiple idiopathic pigmented hemorrhagic sarcoma with sarcoma cutis and acute disseminated lupus erythematosus with tuberculosis cutis is misleading. Greater care in proof reading would have obviated such mistakes as occurred; page 220, corporis instead of corpus; page 666 under prophylaxis should read: "This consists of adequate disinfection of the clothing and bed linen"; on page 686 use of the word "dermic" is questioned.

Contact Lenses. By Theo. E. Obrig, A.B., President, Obrig Laboratories, Inc., New York. Second edition. Fabrikoid. Price, $8. Pp. 546, with 204 illustrations. Obrig Laboratories, Inc., 49 E. 51st St., New York 22. 1947.

This is the second edition of the book intended for the optician and optometrist rather than for the opthalmologist. The chapter on anatomic data is elementary, as is that on biochemistry and physiology. Chapter III discusses conditions for which contact glasses are prescribed. The author includes retinitis pigmentosa in which he says that contact lenses are a means of prolonging useful vision. He cites 2 cases, both of highly myopic persons. The only proper conclusion he can draw is that his 2 (14 and 20 Δ) myopic patients, who had retinitis pigmentosa, saw better with contact glasses. He discusses optics and fitting and devotes a chapter to solutions used with contact lenses. The final one hundred and sixteen pages are devoted to patents for contact glasses.

L'hyperinsulinie: Les états de suractivité fonctionnelle du pancreas endocrine en médecine expérimentale et en clinique. Par Marcel Sendrail, professeur de pathologie générale a l'Université de Toulouse, Toulouse. Paper. Price, 500 francs. Pp. 256, with 30 illustrations. Masson & Cie, 120 Boulevard Saint-Germain, Paris 6^{e}, 1947.

This excellent monograph will aid any student of hyperinsulinism. The author has been interested in hyperinsulinism for fifteen years. The volume of two hundred and fifty six pages contains twenty-five figures, 5 colored plates and seven chapters with a bibliography so extensive that it exceeds expectation. The literature is carefully reviewed, and the author's own investigations are presented without dogmatism.

In chapter 1 an excellent review is given of the experimental etiology of diabetes. The hypersecretion of the two minor hormones, vagotonin and lipocaic, as well as of the major hormone, insulin, may be accompanied by the hyposecretion of one of the other hormones. Rightly the author discerns the lack of close correlation between hyperplasia of islet cell tissue and overproduction of insulin, making the diagnosis of hyperinsulinism difficult from the histologic appearance of the pancreas. Incidentally, the five types of cells found in the pancreas, varying principally according to granules, are mentioned: (*a*) those with alpha granules, possibly producing lipocaic; (*b*) the most numerous of all, with beta granules producing insulin; (*c*) with no granules, found only in the guinea pig; (*d*) few in number and of unknown function, and (*e*) found only in the opossum. The innervation of the islets by the stimulating fibers of the right vagus in contrast to the opposite effect exerted by the fibers of the sympathetic system is emphasized. His own experimental work showed that prolonged fasting in the experimental animal produces hyperplasia of type a cells, thyroxin of b cells and gestation of both types.

In chapter 2, on experimental hyperinsulinism, he discusses the exogenous administration of insulin and endogenous stimulation of the animal's own secretion. The absence of quantitative relationship between the level of glycemia and symptoms is plainly brought out, and also the fact that convulsions following injections of protamine zinc insulin may occur even when the blood sugar has begun to rise following a severe depression, and that these may not respond to the administration of dextrose. He has observed the permanent cortical changes from prolonged hypoglycemia but apparently has not encountered many of those pathetic cases in which death occurs after weeks or months of a vegetative existence. He recognized that the changes in the brain are similar to those in eclampsia, uremia, lead poisoning and other conditions which produce cerebral anoxia. The importance of epinephrine in connection with hypoglycemic reactions and the resulting blocking of vasomotor phenomena by ergotamine are recorded. Neither insulin nor the intermediate metabolism of carbohydrate is responsible for the reactions, but rather the nonutilization of dextrose supplied by the cerebral cells, because of anoxia. The second part of this chapter summarizes the production of hyperinsulinism by the ingestion of carbohydrate food, by fatigue, by hyperthermia, which generally has been overlooked, by faradic stimulation of the vagus nerve and by administration of pancreatropic hormones as described by Anselmino and Hoffmann (unconfirmed).

HEMOPNEUMOTHORAX

To the Editor:—A recent case of spontaneous hemopneumothorax appeared suddenly in a young man, a former serviceman, who had been previously well and in whom evidence of infection has not been found. Trauma was not a factor. What is the statistical incidence of such an entity compared to pneumothorax alone? Chest specialists here state that about 40 cases have been reported. Comment as to etiology is requested.

Jean P. Papps, M.D., Forest Hills, N. Y.

ANSWER.—Although hemopneumothorax from external trauma or incidental to the administration of therapeutic artificial pneumothorax is frequently observed, spontaneous hemopneumothorax is a rare occurrence. Nevertheless, a recent review cites 145 cases from the literature, and in spite of scores of papers on the subject, many cases remain unreported. More than two thirds of the reported cases have been complications of pulmonary tuberculosis. Malignant tumors of the lungs or of the chest wall and emphysematous blebs or cystic changes in the lungs account for many of the others (Korol, E.: Hemorrhagic Pleurisy of Tuberculous Origin and Hemopneumothorax, *Am. Rev. Tuberc.* **33**:185, 1936; Hartzell, H. C.: Spontaneous Hemopneumothorax, *Ann. Int. Med.* **17**:496, 1942; Bernstein, A., and others: Spontaneous Hemothorax, *Dis. of Chest* **12**: 394, 1946).

SENSITIVITY TO "DIAL"

To the Editor:—A patient has, on two occasions, taken hypnotic doses of 5-5-diallylbarbituric acid ("dial," Ciba) and within less than an hour has experienced an intense pruritus of the prepuce. Several days later a lesion typical of herpes developed. Phenobarbital and pentobarbital sodium caused no such reactions. The patient had a history of recurrent herpes preputialis several years ago but cannot recall whether he had been taking barbiturates. What connection, if any, could there be between the use of this barbiturate and the development of the herpes?

M.D., Canada.

ANSWER.—The question raises two possibilities. First, were the lesions actually herpes in the sense that the virus could have been recovered from them, or were they an eczematous eruption of a herpetiform appearance from which, if it had been searched for, the virus could not have been recovered? Assuming that the lesions actually were herpes simplex, of which herpes preputialis is a variant, apparently they could arise in a susceptible person from a variety of causes. It is believed by some that the virus lies dormant within the host and that any one of a number of factors may serve as a trigger mechanism to precipitate an attack. Such factors are physical ones as sunlight, cold or trauma, other infections and reactions to food or drugs. There are several reports in the literature of herpetic eruptions arising constantly after the ingestion of certain foods or the taking of various drugs

If the lesions were not a true herpes simplex but were herpetiform vesicular eruptions, the connection between them and the taking of the drugs is at least seemingly more obvious, inasmuch as such reactions are reported with greater frequency. As far as the patient's reacting to only one of the barbiturates, this is not surprising. One person may be sensitive to practically all members of the barbituric acid series, whereas another is sensitive only to one or two of the members. This is also true for the sulfonamide compounds and for the arsphenamine series and for local anesthetics of the procaine series. The explanation presumably is that in one instance the sensitivity is specifically directed toward a common factor as the malonylurea nucleus and in another case is directed to this ring plus a certain side chain or to the side chain alone.

BENZENE

To the Editor:—Please give information and references on the action of benzene (benzol) and lacquers on bone marrow. Have there been any cases of myelogenous leukemia reported in which the patient was exposed to lacquers, benzene or other chemicals? What is the current status of the treatment of leukemia with benzene?

Joseph D. Sacca, M.D., Flushing, N. Y.

ANSWER.—These toxic substances affect the bone marrow and blood in several ways depending on dosage, duration of exposure and individual susceptibility. Outstanding observations include anemia, leukopenia, thrombocytopenia and increased blood destruction (Erf, L. A., and Rhoads, C. P.: The Hematological Effects of Benzene [Benzol] Poisoning, *J. Indust. Hyg. & Toxicol.* **21**:421, 1939, and Goldwater, L. J.: Disturbances in the Blood Following Exposure to Benzol, *J. Lab. & Clin. Med.* **26**:957, 1941).

Cases have been described in which leukemia developed subsequent to exposure to chemicals (Erf and Rhoads). Leukemia is seldom treated with benzene today because of the associated dangers and because other more satisfactory methods are available.

BLASTOMYCOSIS

To the Editor:—Information is requested regarding: (1) recent advances in treatment of blastomycosis, particularly the lymphatic and pulmonary forms of the disease. Are any of the newer antibiotics of value? (2) Are sensitivity test materials (skin tests) available? What is their specificity and reliability?

Commander (MC), U. S. N.

ANSWER.—In systemic blastomycosis the lungs are involved in 95 per cent of the cases proved by autopsy, and it is probable in most instances that the primary lesion was in the lung. From this focus there may be a sudden generalization of the disease with subsequent lesions of the bones, joints, spleen, kidney, central nervous system and skin with subcutaneous abscesses.

In treatment of systemic types of blastomycosis it is believed that iodides not only fail to arrest the disease but may cause a rapid spread of the lesions. Martin and Smith (Blastomycosis, *Am. Rev. Tuberc.* **39**:275-299, [Jan.-June] 1939) recommend partially desensitizing the patient by injecting subreacting doses of blastomycotic vaccine prepared from the fungus and gradually increasing the dose starting with 0.1 cc., increasing the dose every two or three days until little or no reaction is elicited. Iodides can then be more safely administered and sometimes may cure the infection (cases 10 and 11 of Martin and Smith).

In spite of this advance in treatment the prognosis of systemic blastomycosis is extremely bad. None of the newer antibiotics have proved successful in the human being, although there is some encouraging experimental work with newer extracts of fungi, plants and bacteria which show a strong antibiologic activity against the pathogenic fungi The skin test with blastomycin, which is not an extract of the fungus but a vaccine, is of some value. Martin and Smith prepared their heat-killed vaccine by washing off the yeastlike growth on blood agar and diluting 1:1,000 by volume in sterile isotonic sodium chloride solution. Fifteen to twenty minutes after intracutaneous injection of this material a punctate erythema appears around the site of injection. The specific reaction is similar to a positive tuberculin reaction, appearing in twelve to twenty-four hours and reaching a maximum in two to four days. A state of anergy is seen in patients in the terminal stages of the disease. Unfortunately the reaction is not specific, as it is occasionally observed in patients with nonblastomycotic infection. (Dr. Donald S. Martin, assistant professor of bacteriology, Duke University School of Medicine, Durham, N. C., may be able to provide this vaccine.)

Martin also described a complement fixation test which appeared to be specific; however, a negative test does not exclude the diagnosis, for complement-fixing antibodies are absent from the blood in some cases.

MILIARY TUBERCULOSIS

To the Editor:—A white man aged 38 with inactive pulmonary tuberculosis received an injury to his left testicle on Feb. 17, 1947. Swelling and tenderness of the testicle occurred, accompanied with febrile reaction. He was treated symptomatically for a few days, but because of progress of the condition he was admitted to a general hospital. On March 6, 1947 an epididymotomy was performed for drainage of an abscess. The wound drained and closed alternately thereafter. Tubercle bacilli were later recovered from the wound. Chest films at this time revealed a miliary dissemination of tuberculosis in the lungs. Subsequently tuberculous meningitis ensued and the patient died Sept. 9, 1947 in spite of intensive streptomycin therapy extending over a period of five months.

The injury to his testicle in all probability lighted up a latent focus in the genitourinary tract, which sent tubercle bacilli into the blood stream, as shown by the generalized miliary distribution, and resulted in his death.

I have seen cases of miliary tuberculosis wherein autopsy proved the focus to be in the genitourinary tract, notably the prostate. Can instances be cited to support my position?

J. J. Hennessy, M.D., Hartford, Conn.

ANSWER.—There are abundant observations in the literature tending to support the idea that trauma may make latent tuberculosis active or may even determine the localization of tuberculosis if tubercle bacilli are in the blood stream. If a guinea pig is given a parenteral injection of tubercle bacilli and then receives an intramuscular injection of a suspension of silica, tuberculosis develops at the site of the injection of silica.

Surgical intervention of a tuberculous area, wherever it is localized in the body, may initiate miliary tuberculosis. The development of tuberculous epididymitis following trauma casts some doubt on the diagnosis of inactive tuberculosis. Extrapulmonary tuberculosis is most apt to develop in cases of chronic hematogenous pulmonary tuberculosis. This type of pulmonary tuberculosis causes few symptoms and practically no physical signs and is often considered to be inactive when actually it is active. This type of pulmonary tuberculosis is also associated with actual showers of tubercle bacilli in the blood stream and is the type in which miliary tuberculosis is most apt to develop.

NITRATE CONTENT AND METHEMOGLOBINEMIA OF WELL WATER

To the Editor:—I have had a case of methemoglobinemia in an infant 2 months of age as a result of the ingestion of well water with a high nitrate content, as described in the *Journal of Pediatrics* (November 1946). 1. How is the high nitrate content of well water caused? Is well water with a high nitrate content a common finding? If so, why is methemoglobinemia so rarely found? 2. Is a blood sample still satisfactory for methemoglobin estimation after twenty-four to forty-eight hours? 3. Methylene blue given intravenously is recommended in the treatment of more serious cases. How can methylene blue for injection be locally prepared and sterilized for intravenous injection in urgent cases? In what dosage is it administered orally? Who manufactures it for intravenous use? Is there any difference between methylene blue as used for staining purposes and that for oral use and for intravenous solution?

M.D., Canada

ANSWER.—1. High nitrate content of well water is probably caused by wells into which animal excreta, organic waste and surface water freely drain. Some wells may be satisfactory bacteriologically for drinking purposes, but this does not imply that such water cannot still be of a high content in nitrates; in filtering through soil the larger organic particles and bacteria are easily filtered out but the soluble nitrates remain. However, such wells are subject to bacteriologic contamination at any time. Many reports of similar cases of methemoglobinemia and well water with high nitrate content have been received since the recognition of the cause of cyanosis in some infants. The probable explanation for the few cases of methemoglobinemia caused by the ingestion of well water high in nitrate is that it is necessary for a relatively high amount of water to be ingested each day by the infant in order for enough nitrates to be converted to nitrite and thus cause methemoglobinemia. Another factor is that a certain amount of the methemoglobin is converted back to oxyhemoglobin each day, and if the production of methemoglobin is not in excess of that amount which is reconverted to oxyhemoglobin the clinical cyanosis will not appear. For this reason it is recommended that infants who are being fed artificial formulas in rural areas, especially if the condition of the well or the well water is suspected, should be given formulas which are relatively concentrated and do not necessitate the addition of a large amount of water. This means that whole cow's milk, if known to be bacteriologically safe, diluted with the necessary amount of water to make an acceptable formula should be used rather than evaporated or powdered milk in the preparation of formulas for infants in rural communities. As far as is known, there is no particular susceptibility of any infants to this condition. However, it must be noted that the signs and the symptoms which appear come primarily from the lowering of the amount of functional hemoglobin in the baby's blood stream, and for this reason if an infant is suffering from low hemoglobin in the first place and the additional loss of hemoglobin by conversion to methemoglobin is present, this infant is liable to show symptoms of anoxemia earlier than infants with a normal hemoglobin content.

2. Since methemoglobin is reoxidized to oxyhemoglobin on standing in contact with oxygen, it is necessary to make the methemoglobin estimation as quickly as possible after the blood is drawn. For this reason it is not profitable to depend on a sample of blood sent from a rural location to a proper laboratory for methemoglobin estimation. However, in an infant in which the condition is severe enough to be of concern, the blood grossly has a typical chocolate appearance as is observed in other forms of methemoglobinemia and can be seen when the blood is drawn into the syringe. Hence it is not necessary to depend on an estimation of methemoglobin before instituting therapy.

3. The use of methylene blue intravenously in such cases of methemoglobinemia effects a remarkable and instantaneous cure of the condition. The methylene blue, which is used in ampules as large as 50 to 100 cc. of a 1 per cent solution for the treatment of cyanide poisoning, is available in most centers. It is recognized that the use of this size ampule causes a great deal of waste of methylene blue solution, which is used in a much smaller dosage for the treatment of this condition. Methylene blue, if of a high chemical purity, can be prepared locally by making a 1 per cent solution and sterilizing by autoclaving and then administered in the dose of 1 to 2 mg. for each kilogram of body weight intravenously, but should not be recommended except in urgent cases. In less severe cases the methylene blue can be successfully administered orally in the dosage of 65 to 100 mg. of dye for each kilogram of body weight, although this is occasionally accompanied by vomiting and diarrhea. Methylene blue in 1 per cent solution in ampules from size 10 cc. to 100 cc. in boxes of six can be procured from William H. Rorer, Inc., 254 South Fourth, Philadelphia 6

There is no difference between the methylene blue used commonly for staining purposes and that used for oral administration or for preparation of intravenous solution, provided that it is of a high pharmaceutical grade.

ALUMINUM HYDROXIDE

To the Editor.—What is the information relative to early deleterious effects following prolonged aluminum hydroxide therapy for peptic ulcer?

M. J. Keren, M.D., Chicago.

ANSWER.—Aluminum hydroxide gel cannot be toxic because so much of it is being used every day by thousands of persons with ulcer, yet the literature is not full of reports of toxic reactions or late disasters.

Ehrmann (Ehrmann, R.: Drugs in the Treatment of Peptic Ulcer and Hypersecretion, *Am. J. Digest Dis.* **12**:154-156, 1945) stated that the substance apparently is not absorbed to any great extent, because there is no increase in the usual trace in the urine. However, he stated that there was slight absorption with deposition in the liver. He was of the opinion that aluminum should not be taken continuously by patients.

Beazell, Schmidt and Ivy (Beazell, J. M.; Schmidt, C. R.; and Ivy, W. C.: The Effect of Aluminum Hydroxide Cream on Absorption from the Gastrointestinal Tract, *ibid.* **5**:164-165, 1939) found that aluminum hydroxide given to dogs on a standard diet did not alter the fecal fat or content of nitrogen. When added to pancreatin in vitro it did not alter the tryptic or lipolytic activity. When it is put in the stomach it adsorbs a certain amount of pepsin. According to Grondahl and West (Grondahl, R. D., and West, E. S.: The Effect of Aluminum Hydroxide upon Food Utilization, *ibid.* **12**:197-199, 1945) administration of aluminum hydroxide increases the acidity of the urine.

Ivy and his associates pointed out the important fact that aluminum hydroxide gel withdraws phosphorus from the body; hence, to avoid this depletion it is well to give a phosphate gel which contains phosphorus.

In practical use the main objection to giving the aluminum gels is that they often produce constipation. According to Lichstein, Simpkins and Bernstein (Lichstein, J.; Simpkins, S., and Bernstein, M.: Aluminum Phosphate Gel in the Treatment of Peptic Ulcer, *ibid.* **12**:65-67, 1945) the aluminum phosphate gel has less constipating effect than the ordinary aluminum gel.

Hoffman and Dyniewicz (Hoffman, W. S., and Dyniewicz, H. A.: The Effect of Alumina Gel upon the Absorption of Vitamin A from the Intestinal Tract, *Gastroenterol* **5**:512-522, 1945) found that aluminum gel has only a slightly depressant effect on the absorption of vitamin A. No depression of the tolerance curve for vitamin A was noted in 6 cases in which aluminum phosphate gel was used instead of aluminum gel. In 33 patients with peptic ulcer who had been on aluminum gel for two or more weeks, the plasma vitamin A and plasma carotenoid concentrations were apparently normal. There was a slight lowering of the absorption of amino acids, ascorbic acid and dextrose. However, from a nutritional point of view therapeutic doses of aluminum phosphate gel had no demonstrative effect on the absorption of the nutrient substances studied.

For an ordinary ulcer cure of a month or two there does not seem to be any reason for fearing the use of aluminum gel, but it might be wise not to keep taking it day in and day out for years.

ENLARGED HEART

To the Editor:—Are there known cases of enlarged hearts, due to myocardial toxicity from distant infection or from rheumatic fever, that have after a number of years returned to normal size? I do not refer to reversibility in acute conditions. Has rheumatic fever ever been treated from the allergic approach, i. e., antihistamine substances or adrenaline-like drugs?

M.D., Philadelphia.

ANSWER.—Many instances occur in which a heart enlarged as the result of rheumatic fever has been found years later to be normal in size. Some observers believe this is due to failure of the heart to increase further in size, as normal growth occurs (especially of the thoracic cage), rather than to an actual decrease in the size of the heart. The absence of recurrent rheumatic fever would seem to be the most pertinent means whereby this beneficial situation develops. A well substantiated and striking decrease in heart size has been demonstrated following the treatment of anemia of hookworm infestation. Change in the heart size on recovery from diphtheritic myocarditis could be cited as an instance of a similar change following the effect of a toxin on the heart muscle. There have been numerous attempts to treat rheumatic fever from the usual allergic approach with so-called blocking substances. There are no published reports indicating that such therapy is beneficial in rheumatic fever.

SYPHILIS IN PREGNANCY

To the Editor:-A young white woman, aged 26 ,was found to have a positive serologic response to the Wassermann test on a premarital examination in July 1947. She gave a history of a generalized papular rash a year and a half previously. On July 18, 1947 she had a Kahn determination of 444 and a Kolmer of 512 units. She was given some treatments, amount unknown, in a clinic in San Francisco and was then referred to a clinic closer to her home, where further treatment was carried out. Tests at this second clinic on August 18 revealed that she had a 4 plus Kahn and a 64 unit Kolmer. Between August 20 and 29 she was given 3,000,000 units of penicillin in oil and wax in divided doses. five injections of oxophenarsine hydrochloride "mapharsen" 0.06 Gm., and three injections of a bismuth preparation. Her titers since that date have been as follows: November 26, 64 units; December 31, 8 units, and Jan. 16, 1948, Kahn 4 plus, Kolmer 4 plus, titer unknown. The spinal fluid is normal. This young woman has married and is now three months pregnant. Her husband is negative. She is now a patient of mine and I wish to know whether she should have further treatment or if it is believed that her serologic titer will continue to fall. A check on the titer is to be made each month. This patient has no symptoms other than a positive serologic response at the present time.

M.D., California

ANSWER.—In view of the fact that this patient received something less than the probably desirable dose of penicillin for early latent syphilis (which is in the neighborhood of 5,000,000 units) and that she is now pregnant, retreatment with penicillin is desirable. There is some evidence that in pregnant syphilitic women penicillin in aqueous solution administered every two to three hours around the clock, is more effective than penicillin in oil and beeswax. It is suggested that the patient now be hospitalized and retreated with crystalline penicillin G, 50,000 units every two hours day and night for eight days to a total of 4,000,000 units. Following this, monthly quantitatively titered serologic tests for syphilis should be performed as after the original treatment.

"DICUMAROL" AND SEDIMENTATION RATE

To the Editor:—To what extent is the value of the blood sedimentation rate for determining progress in a case of myocardial infarction altered by "dicumarol" therapy?

G. B. Sanders, M.D., Louisville, Ky.

ANSWER.—In experimental myocardial infarction in dogs "dicumarol" is said to have had no effect on the sedimentation rate *(J. Lab & Clin. Med. 32: 1417, 1947)*. Heparin in vitro causes a striking but little understood inhibition of the rate of sedimentation of red cells. It is doubtful that the sedimentation rate would be altered appreciably by blood concentrations encountered in patients treated with heparin For practical purposes, the influence that anticoagulants may have on the rate of sedimentation of red cells may be disregarded. Finally, it may be added that the value of the sedimentation rate in gaging the progress of healing of a myocardial scar is doubtful. The test is nonspecific and is easily influenced by a variety of factors liable to interfere with convalescence from myocardial infarction.

OZONE TREATMENT

To the Editor:--What are the values and dangers of the "ozone treatment" for multiple sclerosis, arthritis, sinusitis, the common cold and influenza? Certain practitioners in Tucson are using radar rays in treating some of these conditions. Please supply information about ozone or radar treatments.

Elizabeth H. Laidlow, M.D., Tucson Ariz.

ANSWER.--Several pieces of apparatus for producing ozone have been placed on sale in this country during recent years These have been advertised extravagantly as effective in curing various diseases. On investigation, these machines have shown no therapeutic value and some have been condemned as harmful. The Federal Trade Comission has successfully taken court action to halt the unjustified claims of at least one manufacturer of this type of machine. In general, claims for the curative value of these machines have been supported only by testimonials.

In order for ozone to be effective even slightly as a bactericidal agent, it must be present in such high concentrations as are distinctly harmful to the mucous membranes of the nose, throat and lungs of man. If present in concentrations which can be breathed over reasonable periods without such irritation, no protective action against air-borne bacteria can be demonstrated, and certainly no therapeutic value against bacteria could possibly be expected. There is not one shred of scientific evidence to suggest that any ozone machine can help persons with the diseases mentioned.

MULTIPLE BIRTHS

To the Editor:—Recently a Syracuse mother, 40 years of age, was delivered of triplets after having been delivered of triplets in the pregnancy directly preceding this one. All six of the children are alive and healthy. As this is apparently an extremely rare occurrence, the entire community has become intensely interested. There have been varying reports as to whether there have been previously recorded two successive sets of triplets all of whom are living. I would greatly appreciate any information on this point and especially a reference to a a description of a previous similar occurrence.

M.D., New York.

ANSWER.--There are three well established records of the birth of triplets twice to the same woman (Hornstein, M.: Triplets Twice in One Year (Same Mother), *J.A.M.A.* 79:224, [Jan. 26] 1918; Uthmoller, A.: Two Sets of Triplets, *Zentralbl. f. d.ges. Gynaek. u. Geburtsh* 46:859-861 [May 17] 1922, and Breipohl, W.: Second Triple Pregnancy; Case, ibid. 61:931-938 [April 17] 1937. Breipohl refers to the book by E. Bumm, "Grundriss zum Studium der Geburtshulfe in Achtundzwanzig Vorlesungen," (Wiesbaden J. F. Bergman, 1902), in which von Boer and Valenta have reported many multiple births in one mother; for example. six sets of triplets, two sets of quadruplets. There are, of course, many reports of great numbers of children born to one mother in quantities of twins and triplets which are not well authenticated. A great many such instances are reported in the book by G. M. Gould and W. L. Pyle called "Anomalies and Curiosities of Medicine " (Philadelphia, W. B. Saunders, 1897).

MUSCULAR CRAMPS AFTER "MERCUPURIN"

To the Editor:—The note by Dr. A.H. Ulm, New York, in Queries and Minor Notes, THE JOURNAL, February 7, p. 434,on the occurrence of muscular cramps and paresthesias following the use of "mercupurin" is interesting. I have had the opportunity to observe several similar incidents. These symptoms can be promptly relieved by the administration of calcium gluconate and / or isotonic sodium chloride solution intravenously. Ten cubic centimeters of a 10 per cent solution of calcium gluconate will provide immediate relief. If this is not available, salt by mouth will give a similar but slower result. It is my impression that these symptoms are due to changes in salt balance secondary to diuresis. Most of these patients have been on low salt diets, and this makes them more susceptible. It hardly seems justifiable to blame the mercury for the reaction.

Perry S. MacNeal, M.D., Philadelphia.